24/48 Ports ADSL2+ DSLAM

VX-1000MDX/VX-1000HDX

User's Manual

FCC Warning

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the Instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Caution

To assure continued compliance (example-use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the Following two conditions: (1) This device may not cause harmful interference, and (2) this Device must accept any interference received, including interference that may cause undesired operation.

CE mark Warning

The is a class A device, In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

WEEE Warning

To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

Safety

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this and of the computer manufacture must therefore be allowed at all times to ensure the safe use of the equipment.

Revision

User's Manual for Versa 24/48 Ports ADSL2+ DSLAM
Models: VX-1000MDX/ VX-1000HDX
Rev: 1.0 (Aug. 2009)

Table of Contents

Introduction 14
1.1 Product Features 14
1.2 Package Contents 14
1.3 Outlook 15
1.3.1 Front Panel 15
1.3.2 Rear Panel 16
1.4 Technical Specifications 17
Installation 19
2.1 Safety Instruction 19
2.2 Hardware Installation 20
2.2.1 System Requirements 20
2.2.2 Installation Procedure 21
2.3 WEB Configuration 30
2.3.1 System Prepartion 30
2.3.2 WEB Configuration Procedure 31
2.3.3 How to backup / Restore the Configuration 36
2.3.4 Firmware Update 46
Software Introduction 49
3.1 General Overview 49
3.1.1 Features of Management Interface 50
3.2 Configuration Management 51
3.2.1 Bridge Configuration 51
3.2.2 ADSL Configuration 52
3.3 Performance management 53
3.3.1 RMON Feature 55
3.4 Fault Management 56
3.5 Loopback Testing 58
3.6 Cluster Feature 59
WEB Management 60
4.1 System 66
4.1.1 System Information 66
4.1.2 Board IP Setup 67
4.1.3 Ethernet Port Service 68
4.1.4 ADSL Port Service 69
4.1.5 CLI Setup 71
4.1.6 Cluster Setup 72
4.1.7 System Inventory 76
4.1.8 System Contact Info 77
4.1.9 SNTP 78
4.1.10 IP Routes 79
4.1.11 User Administration 80
4.1.12 Duplicator 82
4.2 Bridge 83
4.2.1 Interface Setup 83
4.2.2 VLAN Configuration 92
4.2.3 Spanning Tree 100
4.2.4 Access Control 104
4.2.5 Forwarding 130
4.2.6 Relay 132
4.2.7 IGMP 134
4.2.8 IPOA 141

4.3 ADSL 143
4.3.1 Profile 143
4.3.2 Data & Inventory 151
4.3.3 Line Config & Info 158
4.4 Traffic 160
4.4.1 ATM Traffic Descriptor 160
4.5 SNMP 162
4.5.1 SNMP Community 162
4.5.2 SNMP Target 163
4.5.3 SNMP Notify 164
4.6 Maintenance 165
4.6.1 SYS Log Server 165
4.6.2 Database 166
4.6.3 Firmware Update 174
4.6.4 ATM Loopbacks 177
4.6.5 Fault Management 178
4.6.6 Performance Monitoring 183
CLI Command Reference 200
5.1 Global Commands 205
5.1.1 bye 205
5.1.2 cluster 205
5.1.3 cluster local 205
5.1.4 disable 205
5.1.5 end 205
5.1.6 exit 205
5.1.7 help 206
5.1.8 list 206
5.1.9 list opmode 206
5.1.10 system contact 206
5.1.11 system location 206
5.1.12 system name 207
5.1.13 system restart 207
5.2 Initialize Mode Commands 208
5.2.1 enable 208
5.2.2 show license 208
5.2.3 show time 208
5.2.4 show uptime 208
5.2.5 show version 208
5.3 Enable Mode Commands 209
5.3.1 configure 209
5.3.2 ping 209
5.3.3 show access-list bcrate 209
5.3.4 show access-list dstip 209
5.3.5 show access-list dstmac 210
5.3.6 show access-list ethertype 210
5.3.7 show access-list ip-allowed 210
5.3.8 show access-list ipprotocol 210
5.3.9 show access-list l4dstport 211
5.3.10 show access-list mcfldrate 211
5.3.11 show access-list srcip 211
5.3.12 show access-list srcmac 211
5.3.13 show account 212

5.3.14 show aging 212
5.3.15 show alarm current 212
5.3.16 show alarm event 212
5.3.17 show alarm history 212
5.3.18 show alarm aco 212
5.3.19 show atmdesc 212
5.3.20 show atm-loopback 213
5.3.21 show cli-config 213
5.3.22 show cluster 213
5.3.23 show cpu 213
5.3.24 show dsl-line-identify 213
5.3.25 show fdb 213
5.3.26 show fdbstatic 214
5.3.27 show firmware 214
5.3.28 show help 214
5.3.29 show http 214
5.3.30 show igmp 214
5.3.31 show igmp group 215
5.3.32 show igmp rtport 215
5.3.33 show igmp-acl bind gigabit 215
5.3.34 show igmp-acl bind gigabit la 216
5.3.35 show igmp-acl bind xdsl 216
5.3.36 show interface xdsl {all | <port>} adsl carrier fe ds snr 216
5.3.37 show interface xdsl {all | <port>} adsl carrier fe ds qln 216
5.3.38 show interface xdsl {all | <port>} adsl carrier fe ds hlin 217
5.3.39 show interface xdsl {all | <port>} adsl carrier fe ds hlog 217
5.3.40 show interface xdsl {all | <port>} adsl carrier fe us load 217
5.3.41 show interface xdsl {all | <port>} adsl carrier fe us gain 217
5.3.42 show interface xdsl {all | <port>} adsl carrier fe us tss 218
5.3.43 show interface xdsl {all | <port>} adsl carrier ne us snr 218
5.3.44 show interface xdsl {all | <port>} adsl carrier ne us qln 218
5.3.45 show interface xdsl {all | <port>} adsl carrier ne us hlin 219
5.3.46 show interface xdsl {all | <port>} adsl carrier ne us hlog 219
5.3.47 show interface xdsl {all | <port>} adsl carrier ne ds load 219
5.3.48 show interface xdsl {all | <port>} adsl carrier ne ds gain 219
5.3.49 show interface xdsl {all | <port>} adsl carrier ne ds tss 220
5.3.50 show interface xdsl {all | <port>} adsl channel 220
5.3.51 show interface xdsl {all | <port>} adsl failure 220
5.3.52 show interface xdsl {all | <port>} adsl line 220
5.3.53 show interface xdsl {all | <port>} adsl line config 221
5.3.54 show interface xdsl {all | <port>} adsl line delt-test 221
5.3.55 show interface xdsl {all | <port>} adsl line information 221
5.3.56 show interface xdsl {all | <port>} adsl inventory 221
5.3.57 show interface xdsl {all | <port>} adsl operational 222
5.3.58 show interface xdsl {all | <port>} bridge 222
5.3.59 show interface xdsl {all | <port>} cellcount 222
5.3.60 show interface xdsl {all | <port>} counter 222
5.3.61 show interface xdsl {all | <port>} ipoa 223
5.3.62 show interface xdsl {all | <port>} vc 223
5.3.63 show interface xdsl {all | <port>} vlan 223
5.3.64 show interface bridge 223
5.3.65 show interface counter 223

5.3.66 show interface gigabit [<port>] bridge 224
5.3.67 show interface gigabit [<port>] counter 224
5.3.68 show interface gigabit [<port>] stp 224
5.3.69 show interface gigabit [<port>] vlan 225
5.3.70 show interface gigabit la bridge 225
5.3.71 show interface gigabit la counter 225
5.3.72 show interface gigabit la lacp 225
5.3.73 show interface gigabit la vlan 225
5.3.74 show lacp 225
5.3.75 show mac-spoofing-detect config 225
5.3.76 show mac-spoofing-detect log 226
5.3.77 show management all 226
5.3.78 show management dhcp 226
5.3.79 show management gbe 226
5.3.80 show management mgmt 226
5.3.81 show pm <port> adsl day 226
5.3.82 show pm <port> adsl interval 227
5.3.83 show port-template parameter 227
5.3.84 show priority-list ds 227
5.3.85 show priority-list dstip 227
5.3.86 show priority-list dstmac 228
5.3.87 show priority-list ethertype 228
5.3.88 show priority-list ipprotocol 228
5.3.89 show priority-list srcip 228
5.3.90 show priority-list srcmac 229
5.3.91 show priority-list tos 229
5.3.92 show priority-list vlanid 229
5.3.93 show priority-queue config 229
5.3.94 show priority-regen 229
5.3.95 show profile alarm all 230
5.3.96 show profile igmp-acl 230
5.3.97 show profile rate-limit policer 230
5.3.98 show profile service adsl 230
5.3.99 show profile spectrum adsl 230
5.3.100 show profile tca adsl 231
5.3.101 show rmon alarm 231
5.3.102 show rmon ether_history 231
5.3.103 show rmon event 231
5.3.104 show rmon history 232
5.3.105 show rmon log 232
5.3.106 show rmon statistic 232
5.3.107 show route 232
5.3.108 show runningcfg 232
5.3.109 show runningcfg interface xdsl 233
5.3.110 show runningcfg interface gigabit 233
5.3.111 show snmp 233
5.3.112 show sntp 233
5.3.113 show stp 233
5.3.114 show syslog server 233
5.3.115 show system 234
5.3.116 show tcm config 234
5.3.117 show tcm-policer 234

5.3.118 show temperature 234
5.3.119 show time 234
5.3.120 show uptime 234
5.3.121 show version 234
5.3.122 show version detail 234
5.3.123 show vlan 235
5.3.124 show vlan ethertype 235
5.3.125 show vlan protocol-base 235
5.3.126 show vlan-translation one-to-one 235
5.3.127 show vlan-translation many-to-one 235
5.3.128 telnet 235
5.3.129 traceroute 236
5.4 Configure Mode Commands 237
5.4.1 access-list 237
5.4.2 account add 237
5.4.3 account delete 238
5.4.4 account modify 238
5.4.5 aging 239
5.4.6 alarm aco active 239
5.4.7 alarm event clear 239
5.4.8 alarm history clear 239
5.4.9 atmdesc 239
5.4.10 atm-loopback 240
5.4.11 cli-config session 240
5.4.12 cli-config timeout 240
5.4.13 cluster-cfg domain 241
5.4.14 cluster-cfg management 241
5.4.15 cluster-cfg name 241
5.4.16 cluster-cfg role 241
5.4.17 cluster-cfg voting-key 242
5.4.18 dsl-line-identify dhcp 242
5.4.19 dsl-line-identify dhcp option82 circuit 242
5.4.20 dsl-line-identify dhcp option82 dslam-name 242
5.4.21 dsl-line-identify dhcp option82 dslam-name-cluster 242
5.4.22 dsl-line-identify dhcp option82 dslam-name-customer 242
5.4.23 dsl-line-identify dhcp option82 sub 243
5.4.24 dsl-line-identify dhcp option82 remote 243
5.4.25 dsl-line-identify pppoe srv-name 243
5.4.26 dsl-line-identify pppoe srv-name-check 243
5.4.27 fdbstatic <number> {xdsl | gigabit} 244
5.4.28 fdbstatic <number> disable 244
5.4.29 fdbstatic list 245
5.4.30 firmware bootcode-upgrade 245
5.4.31 firmware login 245
5.4.32 firmware partition 246
5.4.33 firmware upgrade 246
5.4.34 http port 246
5.4.35 igmp acl 246
5.4.36 igmp default 246
5.4.37 igmp deny no-router-alert 247
5.4.38 igmp disable 247
5.4.39 igmp max-group-limit 247

5.4.40 igmp proxy 247
5.4.41 igmp snooping 247
5.4.42 igmp rtport gigabit 248
5.4.43 igmp rtport list 248
5.4.44 igmp timeout 249
5.4.45 igmp version 249
5.4.46 interface gigabit 249
5.4.47 interface gigabit la 249
5.4.48 interface xdsl 250
5.4.49 mac-spoofing-detect 250
5.4.50 mac-spoofing-detect log 250
5.4.51 management dhcp 250
5.4.52 management dhcp timeout 250
5.4.53 management dhcp leasetime 251
5.4.54 management gbe 251
5.4.55 management gbe vlan 251
5.4.56 management gbe vlan priority 252
5.4.57 management mgmt 252
5.4.58 pm clear 252
5.4.59 port-template mask 253
5.4.60 port-template unmask 253
5.4.61 port-template template-port 253
5.4.62 priority-list 253
5.4.63 priority-queue atm priority 254
5.4.64 priority-queue atm queue0-weight 254
5.4.65 priority-queue atm queue1-weight 254
5.4.66 priority-queue atm queue2-weight 255
5.4.67 priority-queue atm queue3-weight 255
5.4.68 priority-queue atm scheduling 255
5.4.69 priority-queue gigabit priority 255
5.4.70 profile alarm 256
5.4.71 profile igmp-acl 256
5.4.72 profile service adsl 256
5.4.73 profile spectrum 256
5.4.74 profile tca xdsl 257
5.4.75 profile rate-limit 257
5.4.76 remotecfg login 257
5.4.77 restore-factory 258
5.4.78 rmon alarm <index> alarm_interval 258
5.4.79 rmon alarm <index> delete 258
5.4.80 rmon alarm <index> falling_eventindex 259
5.4.81 rmon alarm <index> falling_threshold 259
5.4.82 rmon alarm <index> owner 259
5.4.83 rmon alarm <index> rising_eventindex 260
5.4.84 rmon alarm <index> rising_threshold 260
5.4.85 rmon alarm <index> sample_type 260
5.4.86 rmon alarm <index> startup_alarm 261
5.4.87 rmon alarm <index> variable 262
5.4.88 rmon event <index> community 263
5.4.89 rmon event <index> delete 263
5.4.90 rmon event <index> description 263
5.4.91 rmon event <index> owner 264

5.4.92 rmon event <index> type 264
5.4.93 rmon history <index> buckets_requested 264
5.4.94 rmon history <index> delete 265
5.4.95 rmon history <index> ifc 265
5.4.96 rmon history <index> interval 265
5.4.97 rmon history <index> owner 266
5.4.98 rmon statistic <index> delete 266
5.4.99 rmon statistic <index> ifc 266
5.4.100 rmon statistic <index> owner 267
5.4.101 route 267
5.4.102 route default 267
5.4.103 route delete 268
5.4.104 runningcfg active partition 268
5.4.105 runningcfg load partition 268
5.4.106 runningcfg login 269
5.4.107 runningcfg write partition 269
5.4.108 snmp <index> community 269
5.4.109 snmp notify 270
5.4.110 snmp target <name> address 270
5.4.111 snmp target <name> delete 270
5.4.112 snmp target <name> tag-list 271
5.4.113 snmp target <name> version 271
5.4.114 sntp polling interval 271
5.4.115 sntp server address 272
5.4.116 stp 272
5.4.117 stp enable 272
5.4.118 stp disable 272
5.4.119 stp forward delay 272
5.4.120 stp hello time 273
5.4.121 stp max-age 273
5.4.122 stp priority 273
5.4.123 stp version 273
5.4.124 syslog server 274
5.4.125 tcm color-aware 274
5.4.126 tcm color-field 274
5.4.127 tcm green 274
5.4.128 tcm non-conform-pkt 274
5.4.129 tcm red 275
5.4.130 tcm yellow 275
5.4.131 temperature threshold 275
5.4.132 temperature shelf time 276
5.4.133 time set date 276
5.4.134 time set time 277
5.4.135 time set timezone 277
5.4.136 trunk-mode 279
5.4.137 vlan ethertype s-tag 279
5.4.138 vlan protocol-base 280
5.4.139 vlan-translation <port>/<pvc> <VLAN ID> gigabit <port> one-to-one 281
5.4.140 vlan-translation <port>/<pvc> <VLAN ID> gigabit <port> many-to-one 282
5.4.141 vlan-translation <port>/<pvc> <VLAN ID> gigabit la one-to-one

283
5.4.142 vlan-translation <port>/<pvc> <VLAN ID> gigabit la
many-to-one 284
5.4.143 vlan-translation <port>/<pvc> <VLAN ID> disable..... 285
5.5 Ethernet Interface Mode Commands 286
5.5.1 bridge..... 286
5.5.2 gbe admin..... 286
5.5.3 gbe speed..... 286
5.6 Interface Mode Commands 287
5.6.1 bridge..... 287
5.6.2 adsl-config..... 287
5.6.3 ipoa..... 287
5.7 ATM Bridge Mode Commands 288
5.7.1 accfrm..... 288
5.7.2 default vlan..... 288
5.7.3 default prio..... 288
5.7.4 dhcp-relay..... 289
5.7.5 egress..... 289
5.7.6 force priority..... 289
5.7.7 igmp-acl bind..... 289
5.7.8 igmp-acl max-group..... 290
5.7.9 ingress..... 290
5.7.10 ip-allowed..... 290
5.7.11 isolation..... 290
5.7.12 mac-learning..... 290
5.7.13 max-mac..... 290
5.7.14 priority-regen..... 291
5.7.15 protocol-base..... 291
5.7.16 pvc..... 291
5.7.17 pvc atmdesc..... 291
5.7.18 pvc atmdesc plc..... 292
5.7.19 pvc atmdesc shp..... 292
5.7.20 pvc encapsulation..... 292
5.7.21 stack..... 293
5.7.22 stack tls port enable..... 293
5.7.23 tcm-policer..... 293
5.7.24 vlan <VLAN ID> disable..... 293
5.7.25 vlan <VLAN ID> list..... 293
5.7.26 vlan <VLAN ID> priority..... 294
5.7.27 vlan list..... 294
5.8 GBE Bridge Mode Commands.....295
5.8.1 accfrm..... 295
5.8.2 default vlan..... 295
5.8.3 default prio..... 295
5.8.4 egress..... 295
5.8.5 ingress..... 295
5.8.6 isolation..... 296
5.8.7 link mode..... 296
5.8.8 max-mac..... 296
5.8.9 priority-regen..... 296
5.8.10 stack..... 296
5.8.11 stpport edge..... 297

5.8.12 stpport enable/disable 297
5.8.13 stpport pathcost 297
5.8.14 stpport priority 297
5.8.15 tcm-policer 297
5.8.16 vlan <VLAN ID> disable 298
5.8.17 vlan <VLAN ID> list 298
5.8.18 vlan <VLAN ID> priority 298
5.8.19 vlan list 299
5.9 GBE-LA Bridge Mode Commands 300
5.9.1 accfrm 300
5.9.2 default vlan 300
5.9.3 default prio 300
5.9.4 egress 300
5.9.5 ingress 300
5.9.6 isolation 301
5.9.7 lacp actor priority system 301
5.9.8 link mode 301
5.9.9 max-mac 301
5.9.10 priority-regen 302
5.9.11 stack 302
5.9.12 tcm-policer 302
5.9.13 vlan <VLAN ID> disable 302
5.9.14 vlan <VLAN ID> list 303
5.9.15 vlan <VLAN ID> priority 303
5.9.16 vlan list 303
5.10 ADSL Configure Mode Commands 304
5.10.1 line mode carrier 304
5.10.2 line mode diagnostic 304
5.10.3 line mode force-l3 304
5.10.4 line mode mask 304
5.10.5 line port 305
5.10.6 line profile 305
5.10.7 line status service 305
5.11 IPoA Configure Mode Commands 306
5.11.1 brasmac 306
5.11.2 brasmac list 306
5.11.3 cpriority 306
5.11.4 cvlan 306
5.11.5 ipoa-status 307
5.11.6 max-mac 307
5.11.7 pvc 307
5.11.8 pvc atmdesc 307
5.11.9 pvc atmdesc plc 308
5.11.10 pvc atmdesc shp 308
5.11.11 pvc encapsulation 308
5.11.12 uplink gigabit 308
5.12 Access List Mode Commands 309
5.12.1 bcrate cir 309
5.12.2 bcrate list 309
5.12.3 dstmac 310
5.12.4 dstmac list 310
5.12.5 dstip 311

5.12.6 dstip list 311
5.12.7 ethertype 312
5.12.8 ethertype list 312
5.12.9 ip-allowed 313
5.12.10 ip-allowed list 313
5.12.11 ipprotocol 314
5.12.12 ipprotocol list 315
5.12.13 l4dstport 315
5.12.14 l4dstport list 315
5.12.15 mcfldrate list 316
5.12.16 mcfldrate vlan 316
5.12.17 srcip 317
5.12.18 srcip list 317
5.12.19 srcmac 318
5.12.20 srcmac list 318
5.13 ATM Description Mode Commands 319
5.13.1 cbr 319
5.13.2 no atmdesc 319
5.13.3 ubr1 320
5.13.4 ubr2 320
5.13.5 unshp 321
5.13.6 vbr1 321
5.13.7 vbr2 322
5.13.8 vbr3 323
5.13.9 ubr-shp 324
5.13.10 cbr-shp 324
5.13.11 vbr-shp 325
5.13.12 vbrnrt 326
5.14 Priority List Mode Commands 327
5.14.1 ds 327
5.14.2 ds list 328
5.14.3 dstip 328
5.14.4 dstip list 329
5.14.5 dstmac 329
5.14.6 dstmac list 330
5.14.7 ethertype 330
5.14.8 ethertype list 331
5.14.9 ipprotocol 331
5.14.10 ipprotocol list 332
5.14.11 srcip 332
5.14.12 srcip list 333
5.14.13 srcmac 333
5.14.14 srcmac list 334
5.14.15 tos 334
5.14.16 tos list 335
5.14.17 vlanid 335
5.14.18 vlanid list 335
5.15 Alarm Profile Mode Commands 336
5.15.1 alarm mask 336
5.15.2 alarm unmask 336
5.15.3 alarm major 336
5.15.4 alarm minor 337

5.16 IGMP-ACL Profile Mode Commands 338
5.16.1 igmp-acl 338
5.16.2 igmp-acl rebind 338
5.17 Rate Limit Profile Mode Commands 339
5.17.1 share-slb 339
5.17.2 share-dlb 339
5.17.3 non-share-slb 340
5.17.4 non-share-dlb 340
5.18 Service Profile Configure Mode Commands 342
5.18.1 bitrate 342
5.18.2 delay 342
5.18.3 l2-packet 342
5.18.4 mode 342
5.18.5 noise 343
5.18.6 noisemargin 343
5.18.7 ra-interval 343
5.18.8 service name 343
5.19 Spectrum Profile Configure Mode Commands 344
5.19.1 aggregate 344
5.19.2 bands <index> {start | stop} 344
5.19.3 bands <index> mask 344
5.19.4 carriermask 345
5.19.5 message-based 345
5.19.6 modem features 345
5.19.7 noisemargin 346
5.19.8 opmode 346
5.19.9 pbomode 346
5.19.10 power-mgt disable 346
5.19.11 power-mgt l2 enable 346
5.19.12 power-mgt l2_l3 enable 347
5.19.13 power-mgt l0-time 347
5.19.14 power-mgt l2-time 347
5.19.15 power-mgt l2-atpr 347
5.19.16 power-mgt l2-atprt 348
5.19.17 psdlevel 348
5.19.18 psdshape 348
5.19.19 rxaggregate us max powerlevel 349
5.19.20 spectrum name 349
5.19.21 status modify complete 349
5.20 TCA Profile Mode Commands 350
5.20.1 adsl-tca day 350
5.20.2 adsl-tca disable 350
5.20.3 adsl-tca enable 350
5.20.4 adsl-tca interval 350
Appendix A ADSL Operational Mask Table 351
Appendix B Alarm Table 352
Appendix C Maintenance Requirement 353
Appendix D Introduction for Troubleshooting 357

Introduction

1.1 Product Features

- 24/48 Ports ADSL / ADSL2 / ADSL2+ Subscriber Interface with Built-in POTS Splitter
- DMT data rate: Downstream up to 25 Mbps / Upstream up to 3Mbps
- 2 x 1000Base-T or 2 x mini-GbE Uplink Interfaces
- Web-based GUI Management
- Local RS-232 CLI and Ethernet SNMP / Telnet / SSH Management
- Firmware Upgradeable via FTP
- Configuration Backup and Restoration via TFTP
- Supports IPSec / L2TP / PPTP VPN Pass-through
- Supports 4K MAC address
- Supports IEEE 802.1q Tag-based VLAN and Protocol-based VLAN
- Layer 2 / 3 Filtering Based on MAC, IP, Protocol, Port Number and Ether Type
- Access Control List by MAC / IP / Protocol / Port number
- Traffic prioritization (802.1p)
- Supports IGMP Snooping / Proxy per IGMP v1, v2, and v3
- FAN Alarm Indicating
- Temperature Monitoring and System Overheating Trap Functionality
- Supports IEEE 802.1d Spanning Tree Protocol and IEEE 802.3ad Link Aggregation

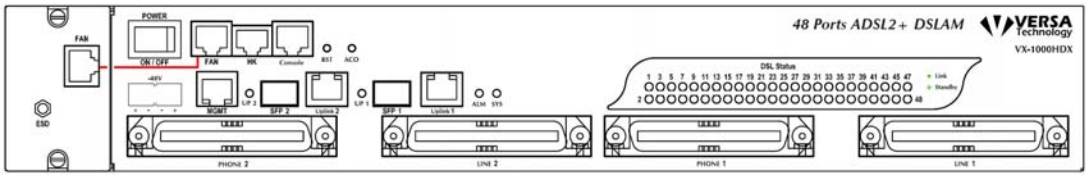
1.2 Package Contents

- VX-1000MDX/ VX-1000HDX Unit x 1
- AC Power Cord x 1
- CD x 1
- Quick Installation Guide x 1
- Console Cable x 1
- Rack-mounting Ear x 2
- Screw Package x 2
- Connect Tenon x 4
- RJ-45 Cable for Fan x 1

If any of above items are damaged or missing, please contact your dealer immediately.

1.3 Outlook

1.3.1 Front Panel



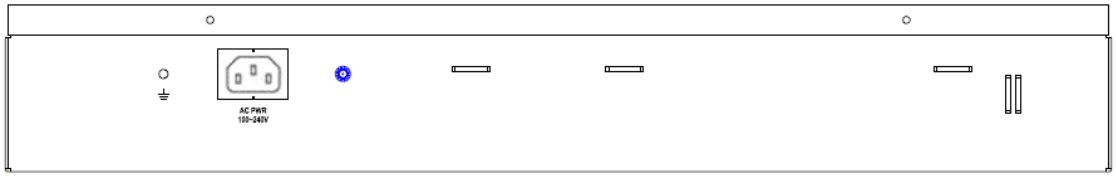
Interface Definition

Interface	Description
POWER	Power On / Off switch.
-48V	-48V DC Power plug-in. (*For -48V model)
FAN	RJ-45 port for connection with the RJ-45 port on the front panel of fan card to provide power to the fan.
HK	RJ-50 port for housekeeping inputs and one alarm contact output.
Console	RS-232 port for system configuration and maintenance. (9600, 8, N, 1)
RST	A hidden reset button for hardware resetting.
ACO	Alarm Cut Off
MGMT	Ethernet Port connected to LAN for providing system out-band Telnet control interface, such as system monitor, control or software upgrade.
Uplink 1 & 2	Gigabit Ethernet electrical trunk ports.
SFP 1 & 2	Gigabit Ethernet SFP trunk ports.
PHONE 1 & 2	RJ-21 connector for connecting POTS lines.
LINE 1 & 2	RJ-21 connector for connecting DSL lines.

LED Definition

LED	Color		Description
Uplink	Orange	On	Uplink Port connect with 100/1000Mbps Ethernet link
		Off	Uplink Port connect with 10Mbps Ethernet link
	Green	On	Active
		Off	Inactive
		Flash	Uplink Port Transmit / receive data
SYS	Green		Normal Operation
	Red		Self-test fail
ALM	Green		Normal Operation
	Red		To indicate the system alarm status
DSL status	Green	On	ADSL Port is activated and linked
		Off	ADSL Port is Disabled
		Flash	ADSL Port is activated but not linked

1.3.2 Rear Panel



Port Definition

Port	Description
AC PWR	AC Power cord plug-in, 100 ~ 240V AC is allowed.

1.4 Technical Specifications

Hardware Specification		
Case		1.5U high box-type with a rack-mountable enclosure
Ports	Uplink	2 x RJ-45 (10/100/1000Base-T) 2 x SFP (1000Base-T/SX/LX/EX/ZX/LHX)
	MGMT	1 x RJ-45 (10/100Base-TX)
	Console	1 x RJ-45 (RS-232 serial port, 9600, 8, N, 1)
	LINE	2 x RJ-21 connectors
	PHONE	2 x RJ-21 connectors
	Fan	2 x RJ-45
	HK	1 x RJ-50
LED Indicators		1 x SYS LED 1 x ALM LED 2 x Uplink LEDs 48 x ADSL LEDs
Software Specification		
Standard		Compliant with ADSL standard – ANSI T1.413 issue 2 – G.dmt (ITU G.992.1) – G.lite (ITU G.992.2) – G.hs (ITU G.994.1) Capable of ADSL2 standard – G.dmt.bis (ITU G.992.3) Capable of ADSL2+ standard – G.dmt.bisplus (ITU G.992.5)
System		– Subscriber interface with built-in POTS splitter – Downstream DMT data rate up to 25 Mbps – Upstream DMT data rate up to 3 Mbps (Annex M) – Distance up to 18 kft – 8 PVCs per xDSL port – DHCP forward – DHCP relay agent – PPPoE relay – IPSec/L2TP/PPTP VPN pass-through function – PPPoA to PPPoE inter-working
Bridge Function		– Supports IPv4 packet – Supports IEEE802.1d Ethernet bridge function between trunk Ether port and ATM VCs – Supports static source MAC table provisioning, automatic source MAC learning and block duplicate ones – Supports 4K static MAC address table – 128 MAC address per x DSL port – Supports IEEE802.1d Ethernet bridge function between trunk Ether port and ATM VCs – Supports Rapid Spanning Tree Protocol (RSTP) for the trunk interfaces per IEEE 802.1w – Support Link Aggregation in IEEE 802.3ad for 2 GBE links to be aggregated together as a logical link – Support both LACP protocol (dynamic) for load sharing and failover in case of loss of Ethernet link
VLAN Function		– IEEE 802.1q Port-based / Protocol-based VLAN – 512 non-stacked VLAN-ID simultaneously ranging from 1 to 4095 – VLAN stacking and VLAN cross-connect – IP Spoofing prevention – MAC anti-Spoofing – Port isolation functionality – Static VLAN group and membership provisioning

Multicast Function	– IP multicast forwarding – Complies with RFC2684 bridged payload encapsulation mode – Up to 256 multicast groups and 512 copies simultaneously – Up to 48 profile-based Multicast Access Control – Limit maximum number of IGMP groups joined per bridge port – IGMP snooping / proxy per IGMP v1, v2, and v3 – IGMP proxy and IGMP snooping Selection
Security	– Supports Layer-2 frame filtering based on MAC and Ether Type – Supports Layer-3 filtering based on IP, Protocol, and Port number – IEEE 802.1X authentication
QoS	– Control the bandwidth occupied by broadcast, multicast, and unknown unicast (flooding) – Rate-limit profile binding per bridge port – Three Color Marking (TCM) policer – Ethernet rate limit per bridge port – ToS (type of service) / DiffServ (differentiated services) stripping and priority queuing – DSCP mapping to 802.1p – Selectable adopted priority queue mechanisms according to Strict Priority Queue (SPQ) and Weighted Fair Queue (WFQ) – Configurable mapping function between ATM PVC and 802.1p priority queue – Supports IP CoS technology
Management	– Web based GUI management – Local RS-232 CLI, and Ethernet SNMP / Telnet / SSH management – Remote in-band SNMP / Telnet / SSH management – Firmware upgradeable via FTP - SNMP v1, v2c

Installation

The followings are instructions for setting up the VX-1000MDX/ VX-1000HDX. Refer to the illustration and follow the simple steps below to quickly install your DSLAM.

2.1 Safety Instruction

The following is the safety instructions for DSLAM before installing.

>> The maximum operating temperature of the DSLAM is 65ºC. Care must be taken to allow sufficient air circulation or space between units when the DSLAM is installed inside a closed rack assembly and racks should safely support the combined weight of all DSLAM.

>> The connections and equipment that supply power to the DSLAM should be capable of operating safely with the maximum power requirements of the DSLAM. In the event of a power overload, the supply circuits and supply wiring should not become hazardous.

>> The AC power cord must plug into the right supply voltage. Make sure that the supplied AC voltage is correct and stable. If the input AC voltage is over 10% lower than the standard may cause the DSLAM to malfunction.

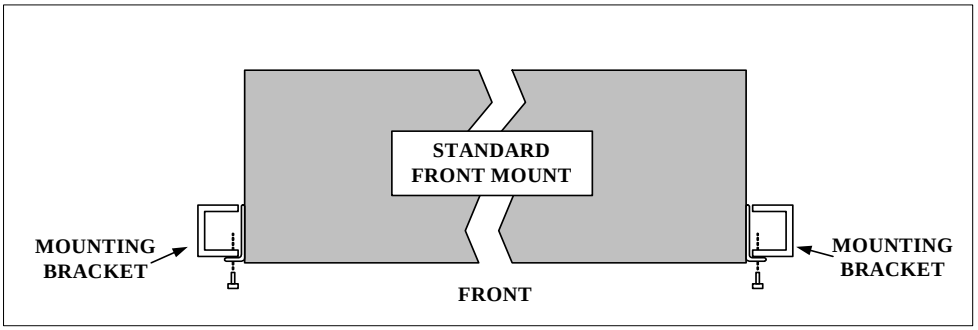
>> Generally, when installed after the final configuration, the product must comply with the applicable safety standards and regulatory requirements of the country in which it is installed. If necessary, consult for technical support.

>> A rare condition can create a voltage potential between the earth grounds of two or more buildings. If products installed in separate building are interconnected, the voltage potential can cause a hazardous condition. Consult a qualified electrical consultant to determine whether or not this phenomenon exists and, if necessary, implement corrective action before interconnecting the products. If the equipment is to be used with telecommunications circuit, take the following precautions:

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in a wet location unless the jack is designed for such conditions.
- Never touch un-insulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Caution when installing or modifying telephone lines (other than a cordless telephone) during an electrical storm. There is a remote risk of electric shock from lightning.
- Do not use a telephone or other equipment connected to telephone lines to report a gas leak in the vicinity of the leak.

2.2 Hardware Installation

The VX-1000MDX and VX-1000HDX are 1.5U high box-type DSLAM units with rack-mountable enclosure. The units may be installed in a standard 19-inch rack by using the mounting brackets provided. Mount the shelf on the rack using the large screws provided.



2.2.1 System Requirements

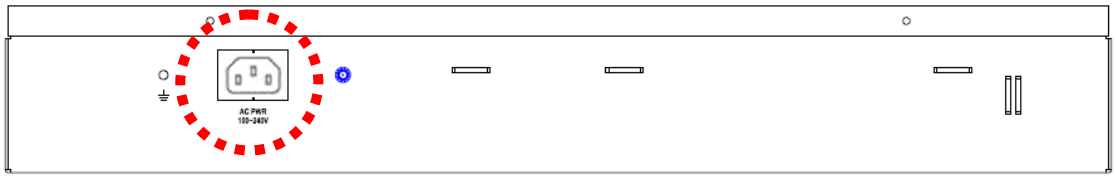
- Workstation with Windows OS
- RJ-45 cables
- RJ-11 cables
- Telco-50 cables
- RS-232 console cable
- MDF Patch Panel

2.2.2 Installation Procedure

1. Power and Ground Connections

Power Connections

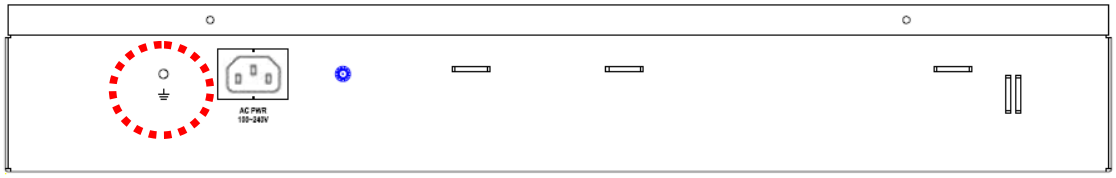
With the VX-1000HDX and VX-1000MDX, connect the AC power cord to the AC supply socket on the rear panel as shown in the figure below, and plug the cord into the external power source. The voltage must be 100 to 240V AC.



Ground Connections

■ **In Central Office:**
There should be a CO GND that is adequately grounded. If the measured resistance from the grounding screw (on the rear panel of the DSLAM, refer to below figure) to CO GND is less than 5 Ohm, then it can be assumed that the system is well grounded. If the measured resistance is larger than 5 Ohm, it is recommended to connect the grounding screw to CO GND using #14 or #12 AWG wire gauge conductor.

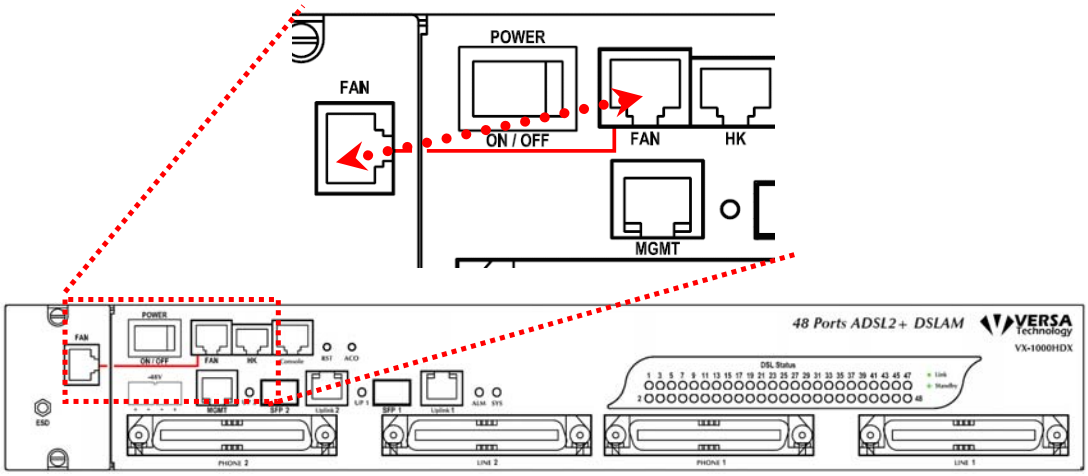
■ **In Remote Cabinet:**
The DSLAM should be grounded by connecting a #14 or #12 AWG conductor between the grounding screw (on the rear panel of the DSLAM, refer to below figure) and the earth ground or main grounding bar. The resistance between the chassis and the grounding bar should be less than 25 Ohm.



Grounding Screw

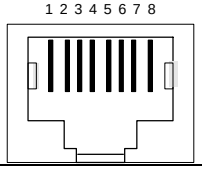
Note:
Ensure that all power sources to the device are turned off during the installation.

2: FAN Cable Connection



There are two FAN ports on the front panel. One is on the FAN card; the other is beside the HK port. To make the fans work, you must use an RJ45-to-RJ45 connector cable to connect the two FAN ports.

FAN Port RJ-45 pin assignment:



3 , 4	5	6	7	8
GND	FAN ERR1	FAN ERR2	FAN ERR3	FAN Status

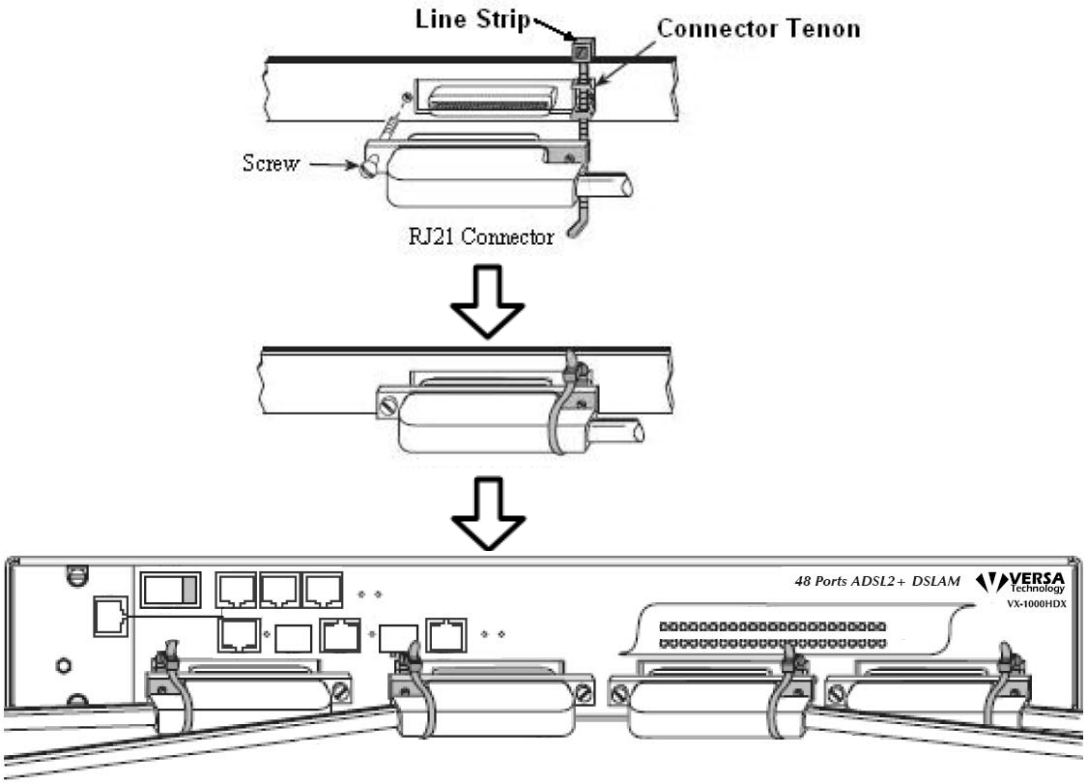
3: ADSL and POTS Connections

The VX-1000HDX/MDX supports 48 ports ADSL subscribers per box. There are four RJ-21 50-pin female connectors on the front panel of the system. Two for ADSL lines and two for POTS interfaces.

To connect the subscriber lines, use cables with the RJ-21 50-pin male connectors. When installing, just plug the end of cable with connector into the LINE and PHONE connectors on the front panel. The other end of the cable is generally tied to the MDF (Main Distribution Frame).

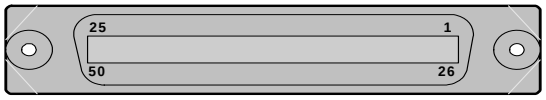
Note:
The MDF Patch panel is optional of standard package.

Please plug-in the RJ-21 cable with connector tenon as below figures.



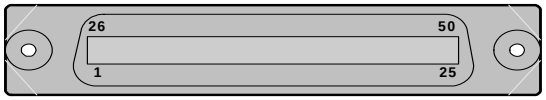
LINE / PHONE interface pin assignment:

For port 1~24:



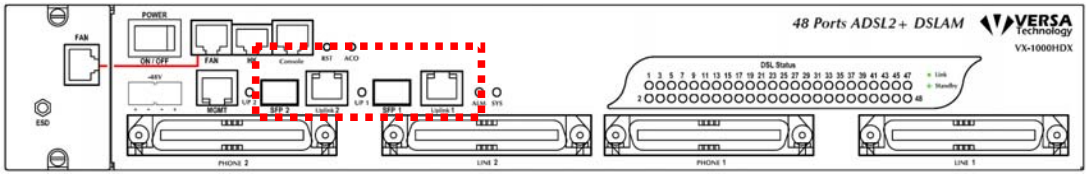
PIN Number	1	2	3	4	5	6	7	8	~	18	19	20	21	22	23	24	25
Port Number	Tip 1	Tip 2	Tip 3	Tip 4	Tip 5	Tip 6	Tip 7	Tip 8	~ ~	Tip 18	Tip 19	Tip 20	Tip 21	Tip 22	Tip 23	Tip 24	X
PIN Number	26	27	28	29	30	31	32	33	~	43	44	45	46	47	48	49	50
Port Number	Ring 1	Ring 2	Ring 3	Ring 4	Ring 5	Ring 6	Ring 7	Ring 8	~	Ring 18	Ring 19	Ring 20	Ring 21	Ring 22	Ring 23	Ring 24	X

For port 25~48:



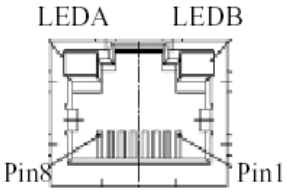
PIN Number	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**~**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Port Number	Tip 25	Tip 26	Tip 27	Tip 28	Tip 29	Tip 30	Tip 31	Tip 32	~ ~	Tip 42	Tip 43	Tip 44	Tip 45	Tip 46	Tip 47	Tip 48	X
PIN Number	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**~**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
Port Number	Ring 25	Ring 26	Ring 27	Ring 28	Ring 29	Ring 30	Ring 31	Ring 32	~	Ring 42	Ring 43	Ring 44	Ring 45	Ring 46	Ring 47	Ring 48	X

4: Uplink Interfaces Connections



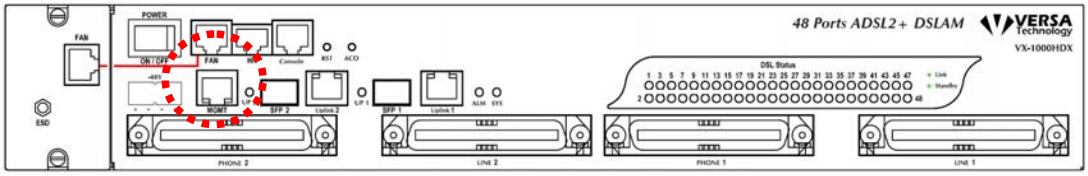
The system provides two types of trunk interfaces (two ports for each type). There are electrical (RJ-45) and optical (SFP) interfaces. When both electrical and optical ports are connected, system will automatically select the interface according to the priority setting (Fiber first or Copper first).

RJ-45 electrical trunk port pin assignment:

	1,2	T/Rx+,T/Rx-
	3,6	T/Rx+,T/Rx-
	4,5	T/Rx+,T/Rx-
	7,8	T/Rx+,T/Rx-

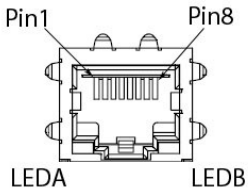
SFP (Mini-GBIC):
Prepare a proper SFP module and install it into the optical trunk port. Then you can connect fiber optics cabling that uses LC connectors or SC connectors (with the use of an optional SC-to-LC adapter) to the fiber optics connector on the trunk port.

5: Management Port Connection



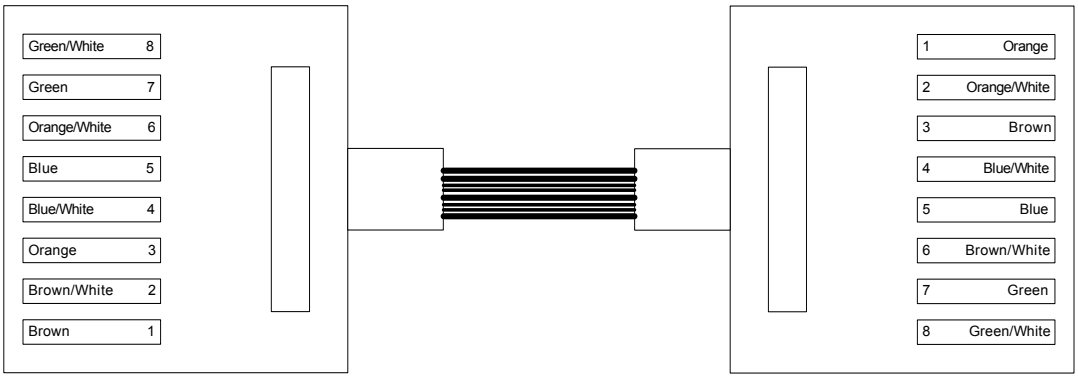
The VX-1000HDX/MDX provides one RJ45 (MGMT) on the front panel for Ethernet interface connection. To connect the Ethernet interface to PC directly, an Ethernet crossover cable is required.

Ethernet Port RJ-45 pin assignment:



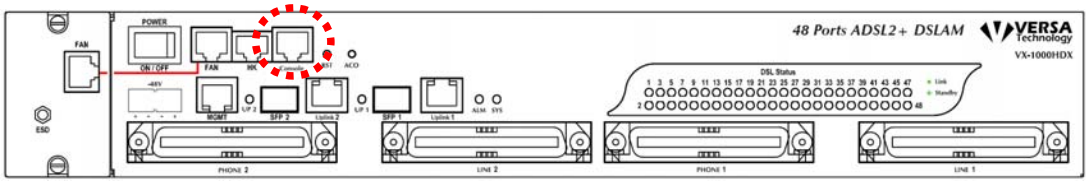
1	2	3	6	Other pins
TX +	TX -	RX +	RX -	Bob Smith Termination

To connect the Ethernet interface to PC, the Ethernet crossover cable is required. The detailed pin assignment is shown below.



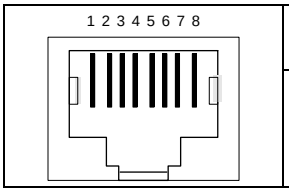
Name	Pin		Pin	Name
Tx+	1	⟷	3	Rx+
Tx-	2	⟷	6	Rx-
Rx+	3	⟷	1	Tx+
Rx-	6	⟷	2	Tx-

6: Console Port Connection



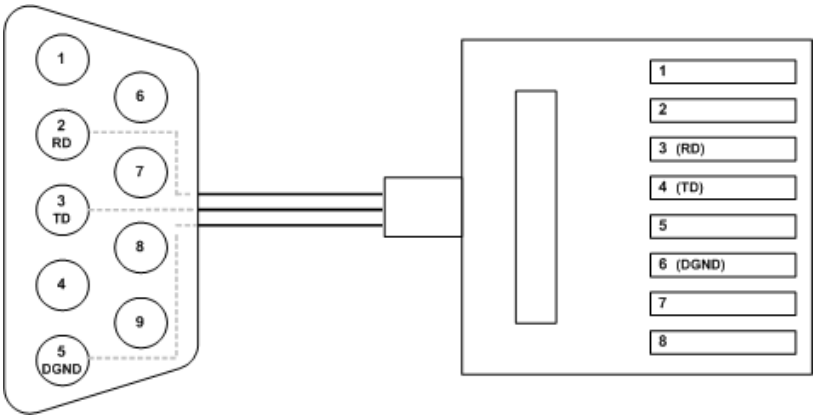
The Console interface on the front panel is the main control interface of the VX-1000HDX/MDX. To connect the host PC to the console port, a RJ45 (male) connector-to-RS232 DB9 (female) connector cable is required. The RJ45 connector of the cable is connected to the COM port of the DSLAM; the DB9 connector of the cable is connected to the PC COM port.

Console Port RJ-45 pin assignment:



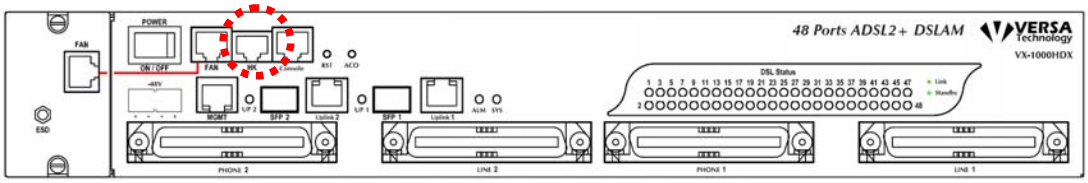
3	4	6	Other pins
TX	RX	GND	unused

To connect the host PC to the console port, a RJ45 (male) connector-to-RS232 DB9 (female) connector cable is required. The RJ45 connector of the cable is connected to the COM port of the DSLAM; the DB9 connector of the cable is connected to the PC COM port. The pin assignment of the console cable is shown below:



DB-9F	RJ-45M Pin
	1
	2
Pin 2 RD	3
Pin 3 TD	4
	5
Pin 5 DGND	6
	7
	8

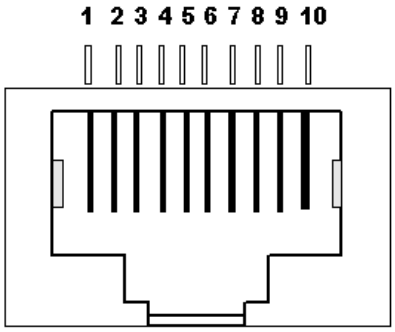
7: Housekeeping Connection



The VX-1000HDX/MDX equips with a RJ-50 port (HK) on the front panel to provide four housekeeping inputs and one alarm contact output. Generally, housekeeping contacts can connect to environment-sensor-controlled switch to indicate the operation environment condition.

The HK circuit contains a photo coupler powered by the VX-1000HDX/MDX to detect the “open” or “close” status of the loop between HK_IN and HK_COM (users don’t need to feed 3.3v power into the circuit). As to the alarm output, there is a relay between ALMOUT and ALMCOM to control the status of the loop to be “OPEN” or “CLOSE” to the alarm equipment (close between ALMOUT and ALMCOM for alarm; open if no alarm).

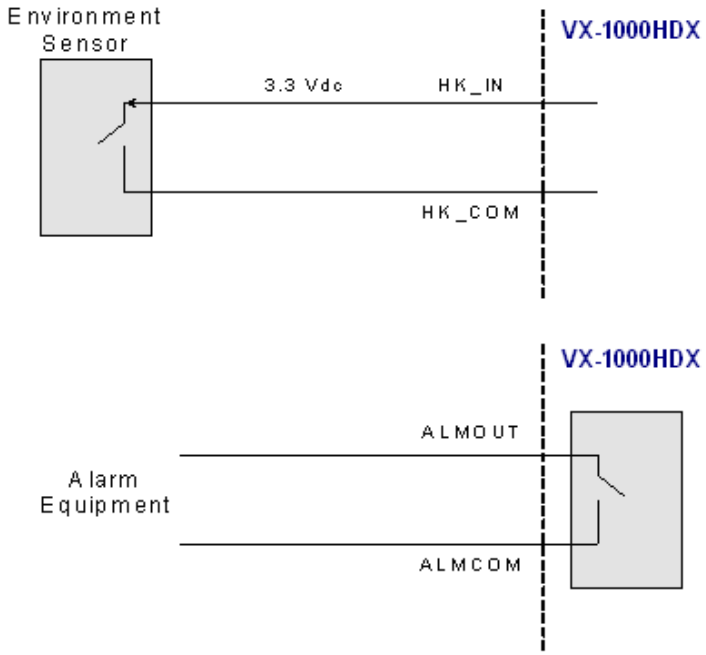
HK Port RJ-50 pin assignment:



1	ALMOUT
2	HK1IN
3	HK1COM
4	HK2IN
5	HK2COM
6	HK3IN
7	HK3COM
8	HK4IN
9	HK4COM
10	ALMCOM

Note:
The maximum current and voltage for ALMOUT / ALMCOM is restricted to 0.5 A 30 VDC or 0.15 A 125 VAC (resistive load).

Operation diagram of Housekeeping Inputs and Alarm Contact Output:



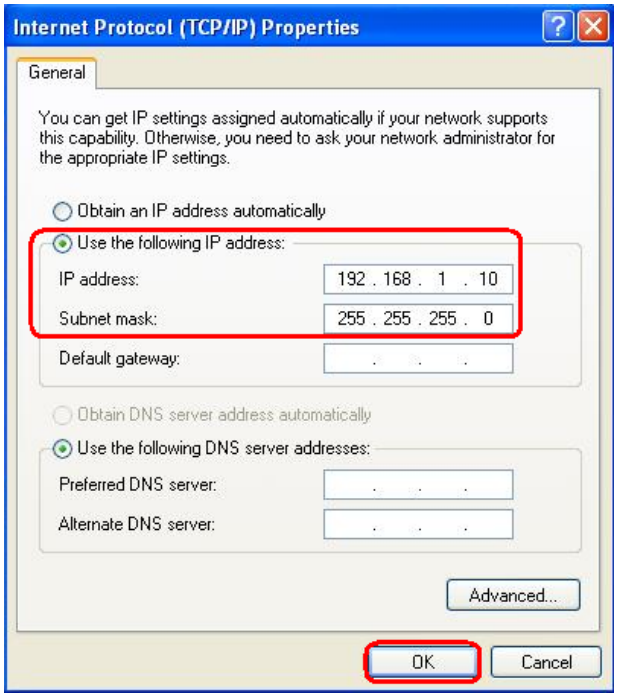
2.3 WEB Configuration

This section describes how to use Web Configuration Tool to maintain your DSLAM. The VX-1000HDX/MDX contains a HTTP server. You can login and configure it by using your Web Browser.

2.3.1 System Prepartion

Before attempting to configure the VX-1000HDX/MDX, please ensure as below:
Set your computer's IP with the same network segment of the DSLAM.
(For example: VX-1000HDX default MGMT IP is 192.168.1.1 / 255.255.255.0)

Then you can set computer's IP to:
192.168.1.x / 255.255.255.0. (The range for x is from 2 to 253)



2.3.2 WEB Configuration Procedure

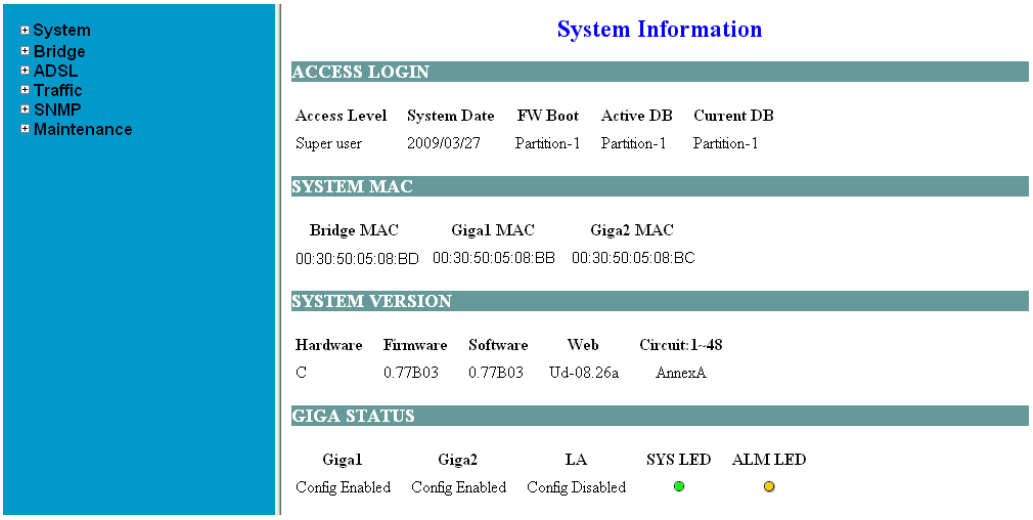
Step 1: Using your WEB Browser

Open web browser and type **http://192.168.1.1** in the browser's address box. This IP is the default MGMT IP address of VX-1000HDX/MDX. Press Enter.

Step 2: DSLAM Login

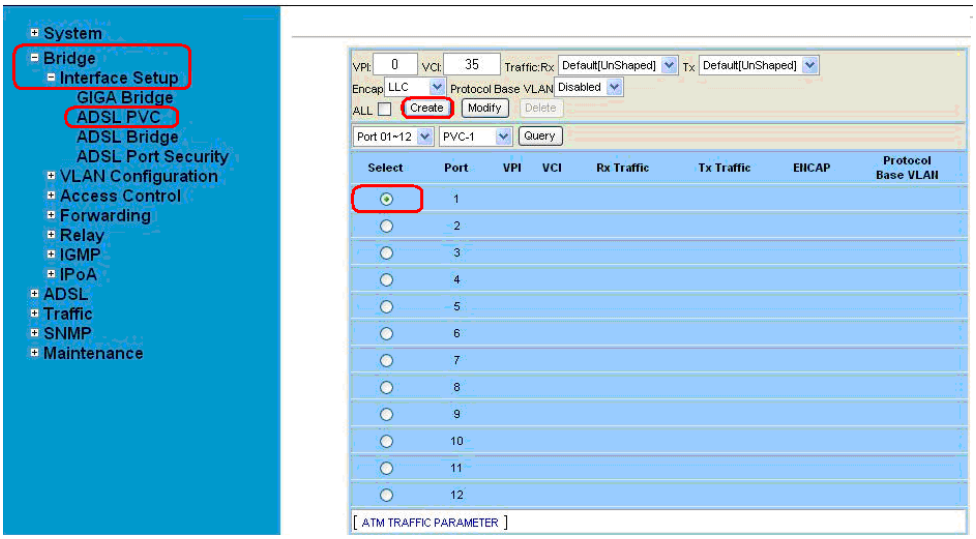
A login page will appear. Please type your username / password and click "**Sign in**". (The default **username / password** is **admin / admin**)

After you log in the VX-1000HDX/MDX, you will see the system information as below.

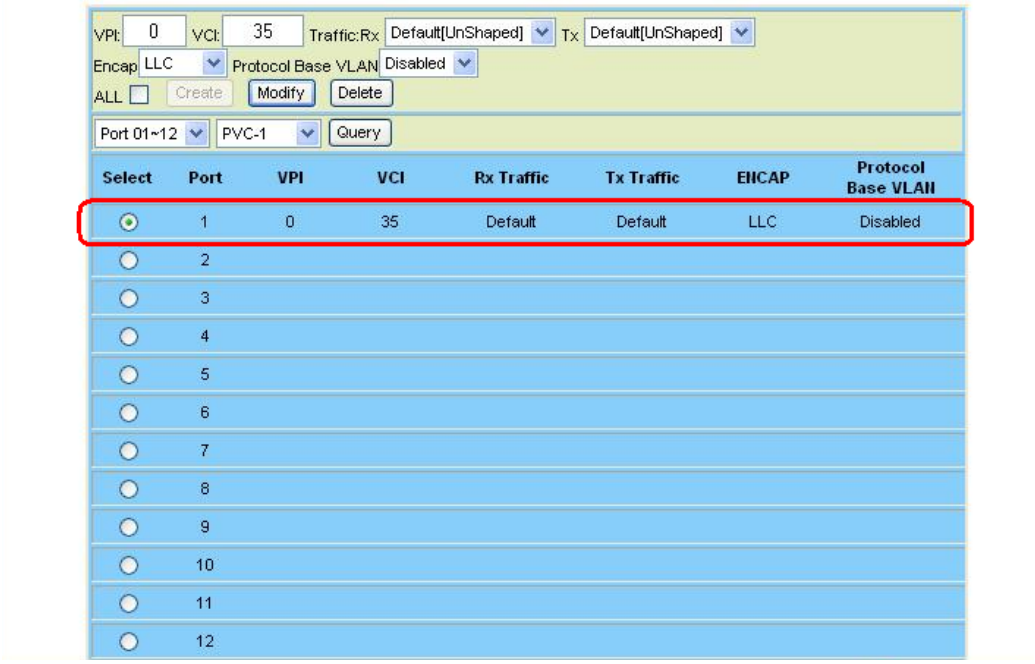


Step 3: Configure the DSL PVC

Go to "**Bridge → Interface Setup → ADSL PVC**" setting screen, select the ADSL port and click **"Create"** to apply the PVC settings.
(For example, create PVC-1 to Port 1. The default **VPI / VCI** is **0 / 35**)

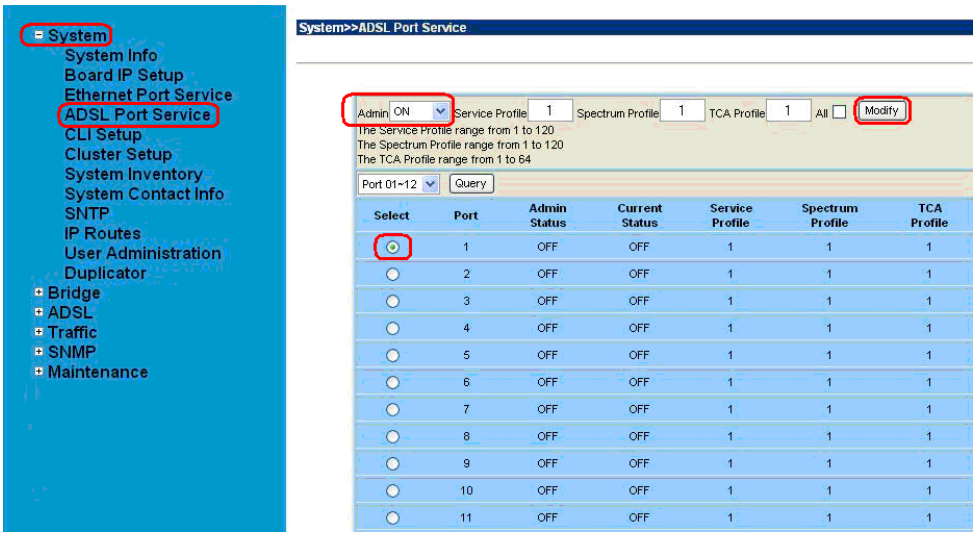


You can see the Port has been created.

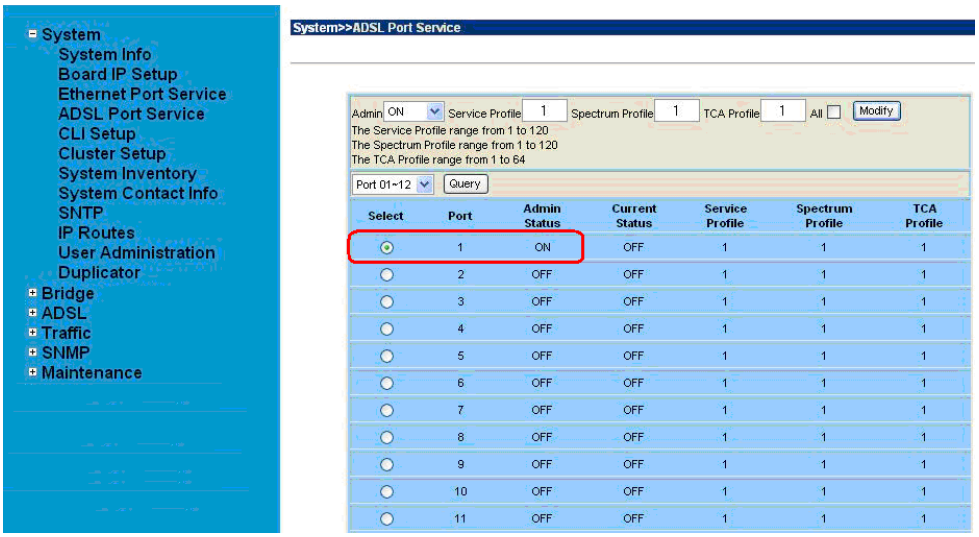


Step 4: Enable the ADSL Port Service

Go to **“System → ADSL Port Service”** setting screen, select the ADSL port and Admin is “ON”. Click **“Modify”** to make this Port is ON.



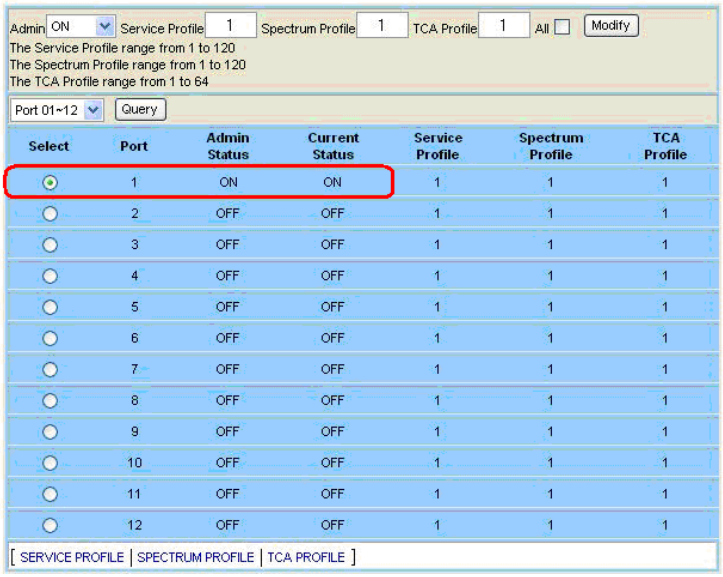
You can see the Admin status became to ON.



Step 5: Connect the ADSL2/2+ CPE to Patch Panel

Connect the ADSL2/2+ CPE to Patch Panel and configure it, the VPI / VCI value must be the same with the VX-1000HDX/MDX.

After finish setting, the CPE will establish the ADSL connection with VX-1000HDX/MDX. You can check the connection status as below figure. The Current Status is ON.
Now the clients can access to Internet through VX-1000HDX/MDX.

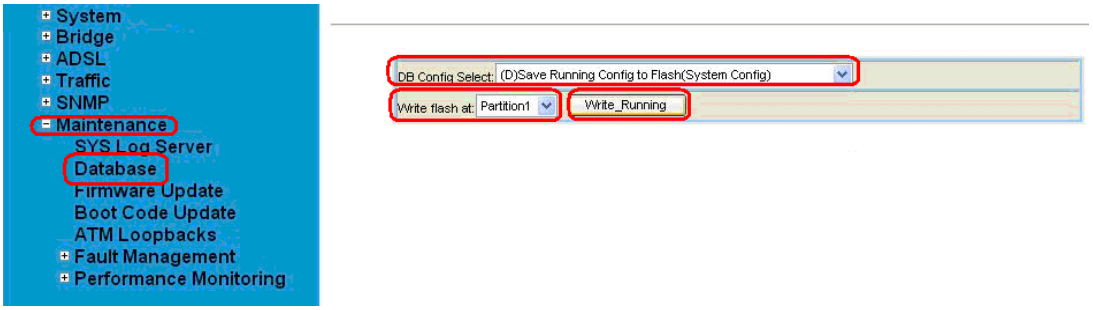


Step 6: Save the running configuration to Flash

Remember to save your running configuration to the flash, otherwise the settings will be lost if you power-off VX-1000HDX/MDX.

Go to **"Maintenance → Database"** setting screen, select the **"(D) Save Running Config to Flash (System Config) "**. There are two partitions on flash, select your Partition which you want to save and click **"Write Running"**. The configuration will save to the Flash.

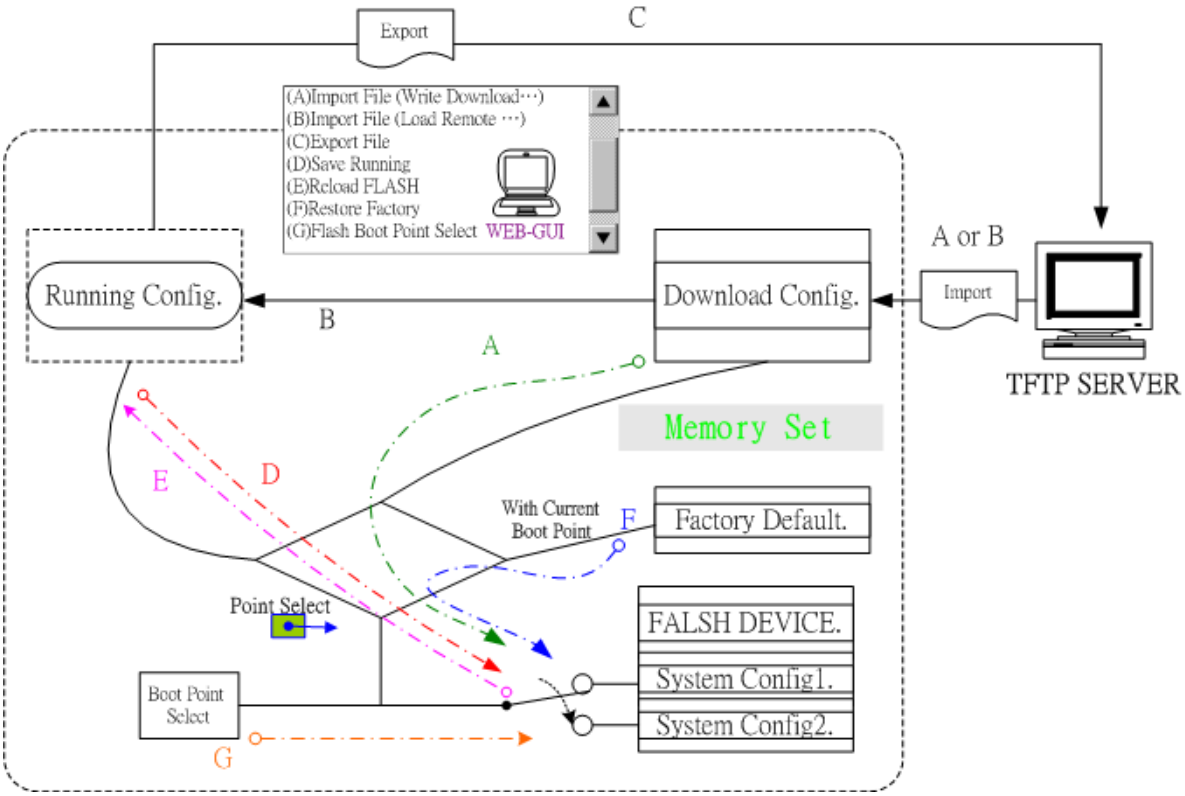
Note:
Default Partition is **Partition1**.



2.3.3 How to backup / Restore the Configuration

Configuration Import / Export

The VX-1000HDX/MDX provides the configuration preservation feature that the configuration database is stored in flash memory (two partitions available). In addition to the configuration preservation feature, the VX-1000HDX/MDX also provides the configuration export/import feature.



DB Configuration Concept

For CLI:

Suppose that TFTP Server IP address is 172.16.100.181 and configuration file name is 'testcfg':

(A) Import file from TFTP Server to the Download Config and then write Download Config to the Flash (partition 1 or partition 2).

Ex:

```
enable
configure
remotecfg login 172.16.100.181 get testcfg write partition <number>
```

(B) Import file from TFTP Server to the Download Config and then load Download Config to the Running Config.

Ex:

```
enable
configure
remotecfg login 172.16.100.181 get testcfg load
```

(C) Export: export file from Running config to the TFTP server.

Ex:

```
enable
configure
runningcfg login 172.16.100.181 put testcfg
```

(D) Save Running config to the Flash (partition 1 or partition 2).

Ex:

```
enable
configure
runningcfg write partition <number>
```

(E) Reload Flash data to the Running config

Ex:

```
enable
configure
runningcfg load partition <number>
```

(F) Set system configuration (current boot point) to factory default value

Ex:

```
enable
configure
restore-factory
```

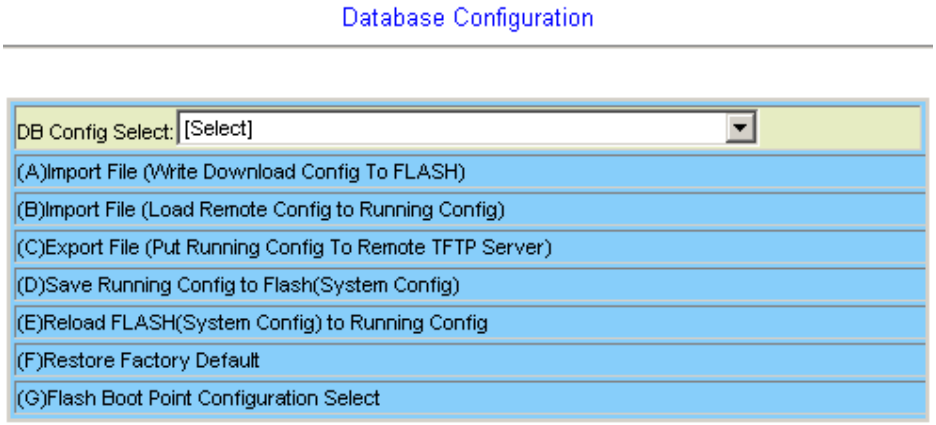
(G) Select Configuration Flash Boot Point

Ex:

```
enable
configure
runningcfg active partition <number>
```

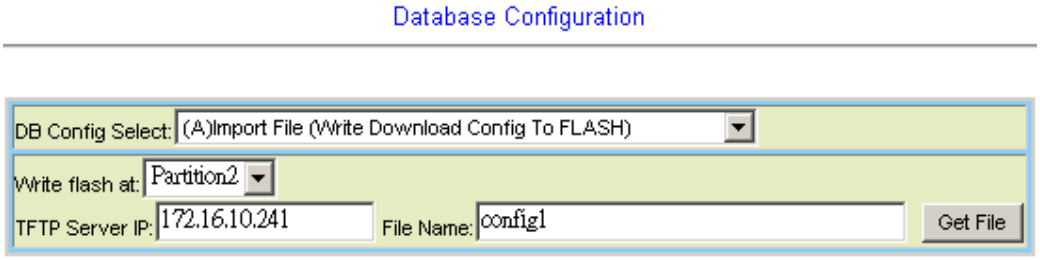
For Web:

On the menu tree, click on **Maintenance** --- > **Database**. The *Database Configuration* page is displayed. Select the database configuration action you want to perform.

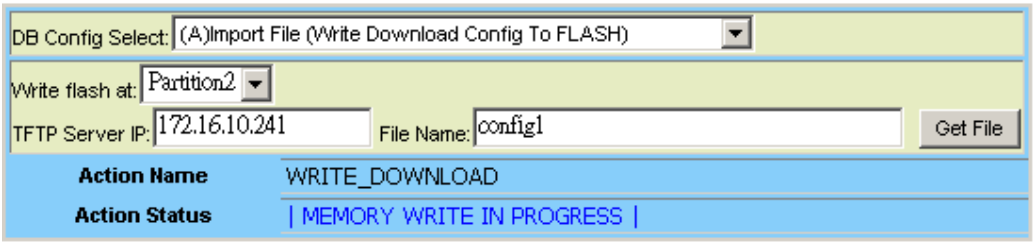


(A) Import File (Write Download Config To Flash):

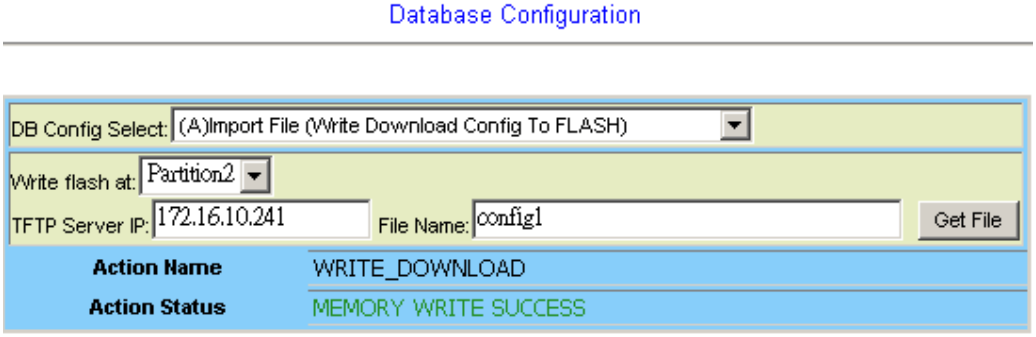
Type in the TFTP Server IP address and the name of the file you want to download. Then click on **Get File** button.



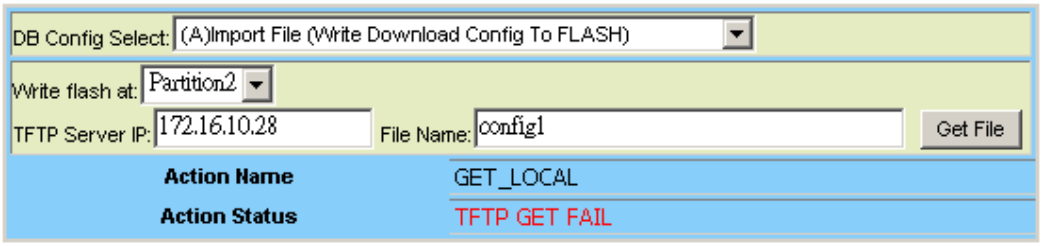
Write downloaded Config to Flash in progress:



Write to memory successfully:

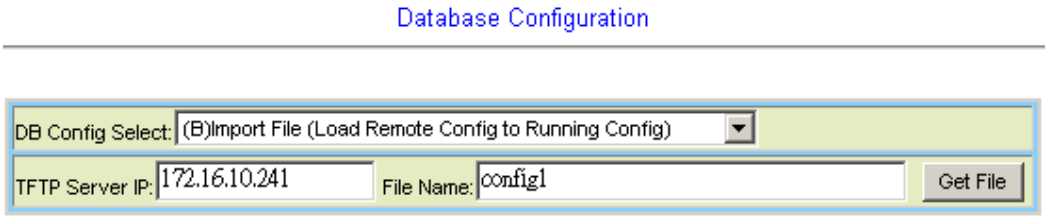


Fail to Get File:

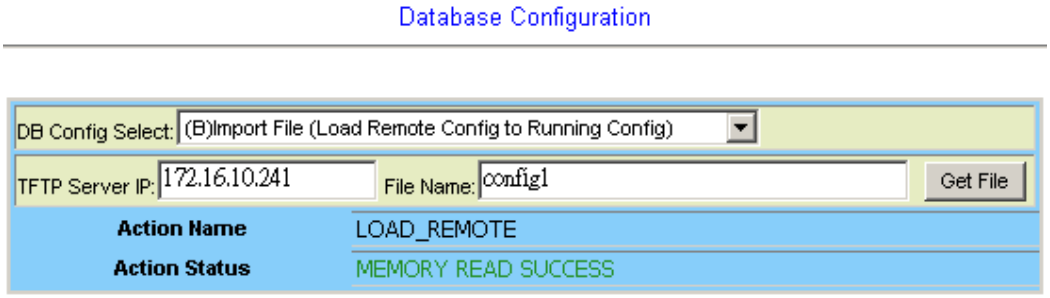


(B) Import File (Load Remote Config to Running Config)

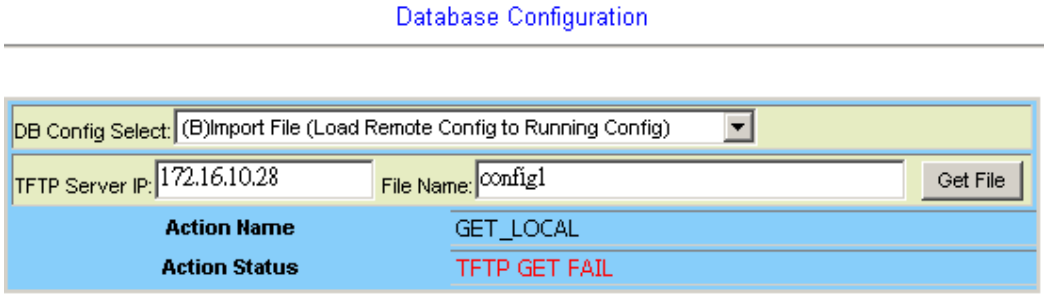
Type in the TFTP Server IP address and the name of the file you want to download. Then click on **Get File** button.



Load to Running Config successfully:

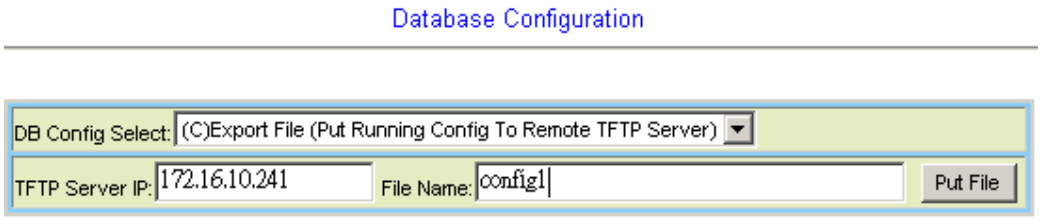


Fail to Get File:

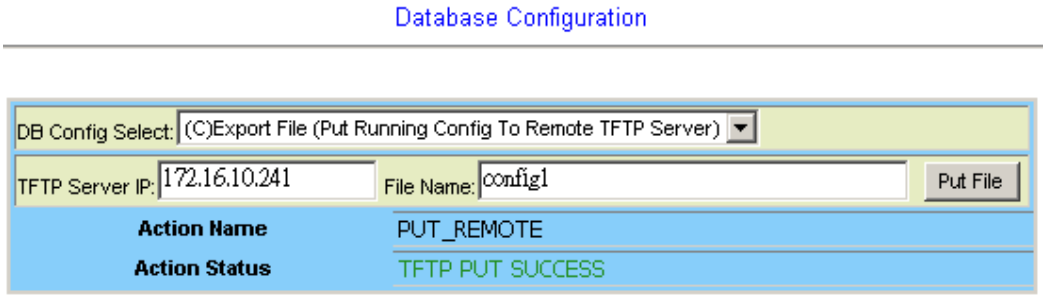


(C) Export File (Put Running Config to Remote TFTP Server)

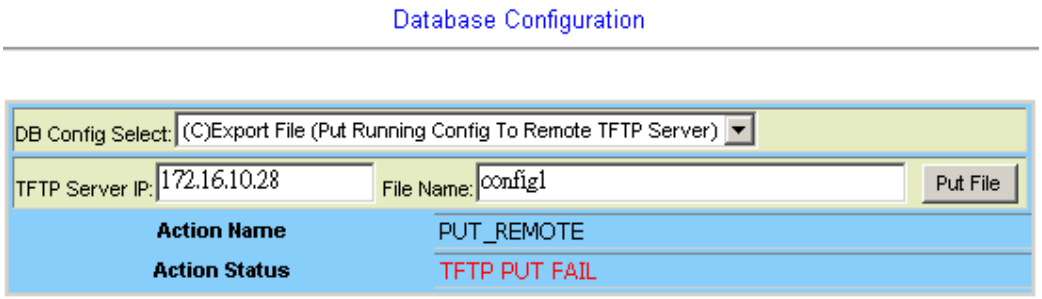
Type in the TFTP Server IP address and the name of the file you want to export. Then click on **Put File** button.



TFTP put file successfully:

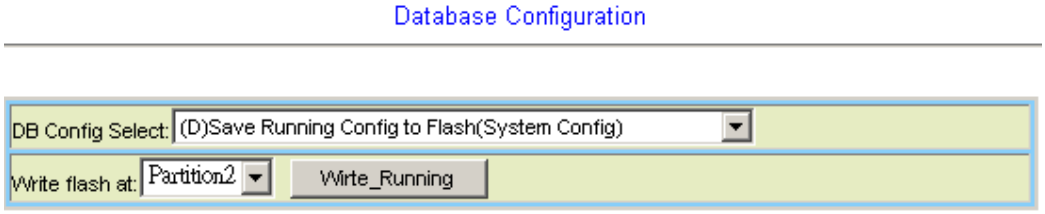


TFTP put file fail:

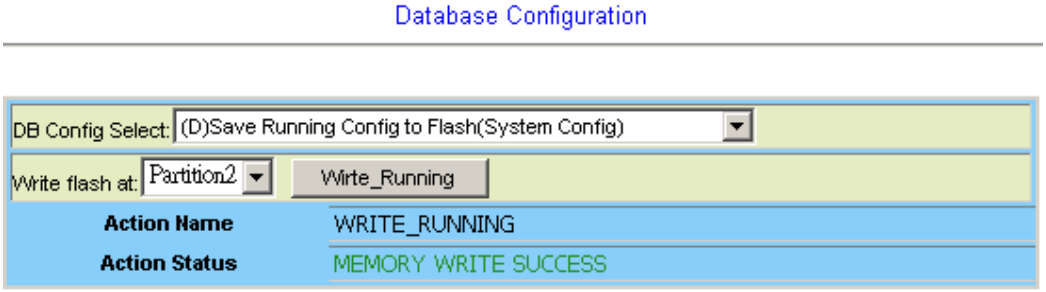


(D) Save Running Config to Flash (System Config)

Click on the drop-down list and select partition, and then click on **Write_Running** button to write running configuration to Flash.

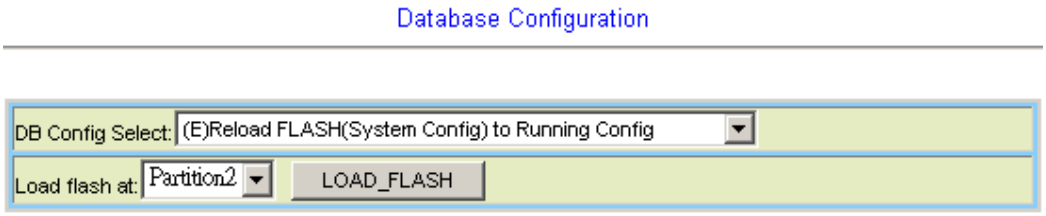


Write running config to Flash successfully:

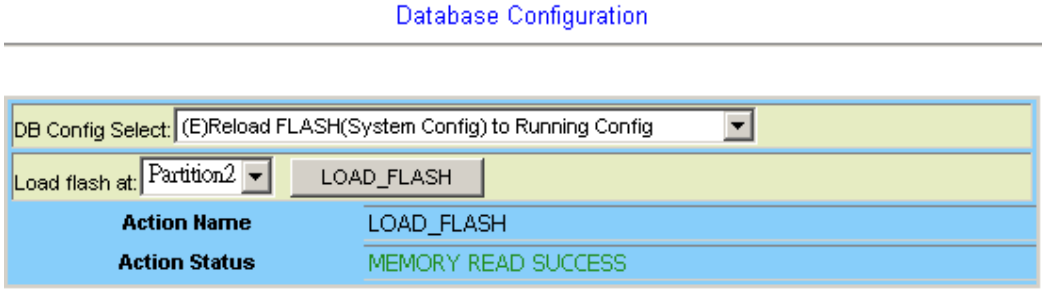


(E) Reload Flash to Running Config

Click on the drop-down list and select partition, and then click on **LOAD_FLASH** button to load configuration from Flash to Running Config.

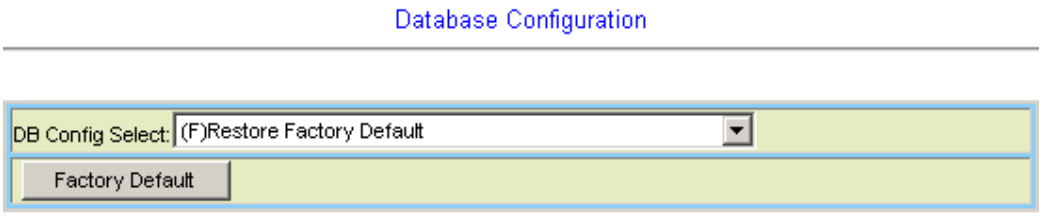


Load configuration from Flash to Running Config successfully:

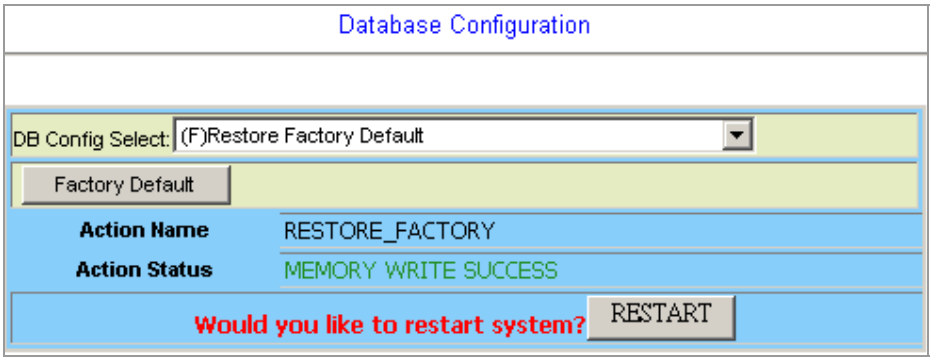


(F) Restore Factory Default

Click on **Factory_Default** button to restore factory default configuration.

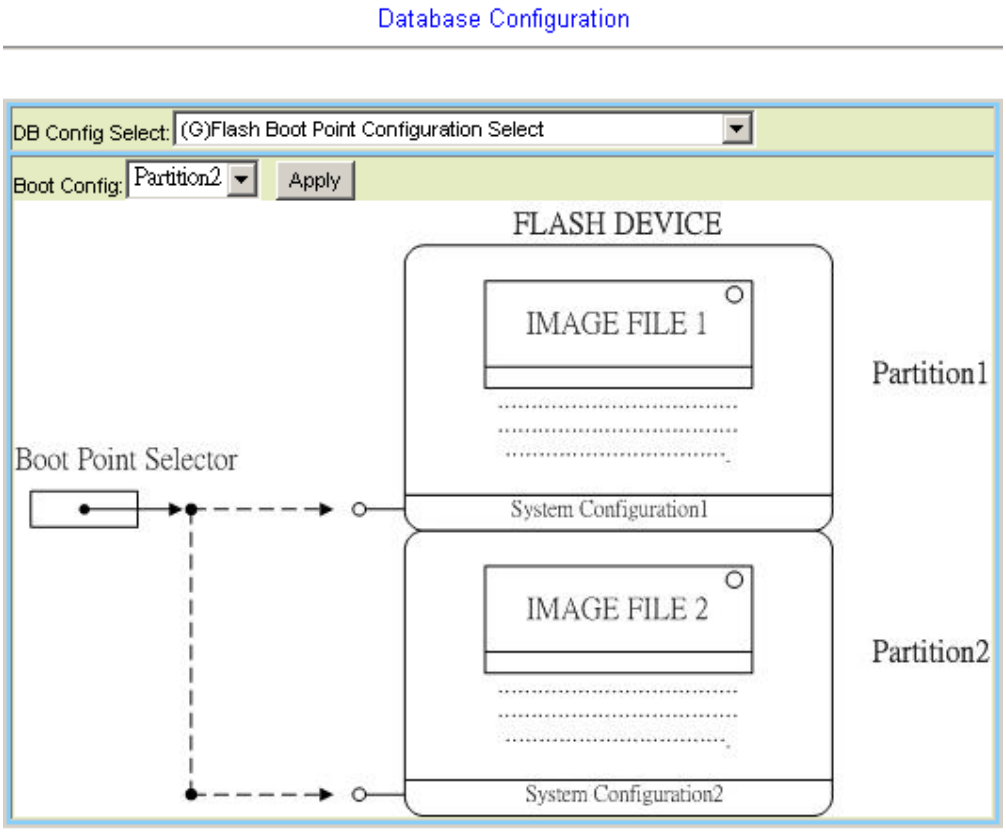


After loading default configuration to Flash successfully, you must click on **RESTART** button to restart the system so that the configuration can take effect.



(G) Flash Boot Point Configuration Select

Click on the *Boot Config* drop-down list and select the partition (Partition1 or Partition2) as the boot point. Click on **Apply** button and then restart the system. The system will restart and load the configuration in the partition you select into the running configuration.



2.3.4 Firmware Update

For CLI:

If you want to update firmware code, you must get image file from FTP Server. Suppose that FTP Server IP address is 172.16.10.219 and the image filename is 'vmlinux_u1000_ 0.73B05'.

Example:

1. Firmware update:

enable //go to enable mode
configure //go to configuration mode
firmware login 172.16.10.219 **username** share **password** tg123
firmware upgrade vmlinux_u1000_0.73B05

(Firmware upgrade may take a few minutes, don't turn off or reset the system during the process. You can get status using command 'show firmware status' in Enable execution mode.)

exit //back to enable mode
show firmware status

(When status returns "Upgraded already!", you can restart the system to run new firmware image. Once you upgrade successfully, you can't upgrade the second time unless you have restarted the system.)

show firmware partition //show partition information

Current Version:0.71B09

Partition	Version	Date	Status
1	0.71B09	2007/07/05	--
2	0.71B09	2007/07/10	Active

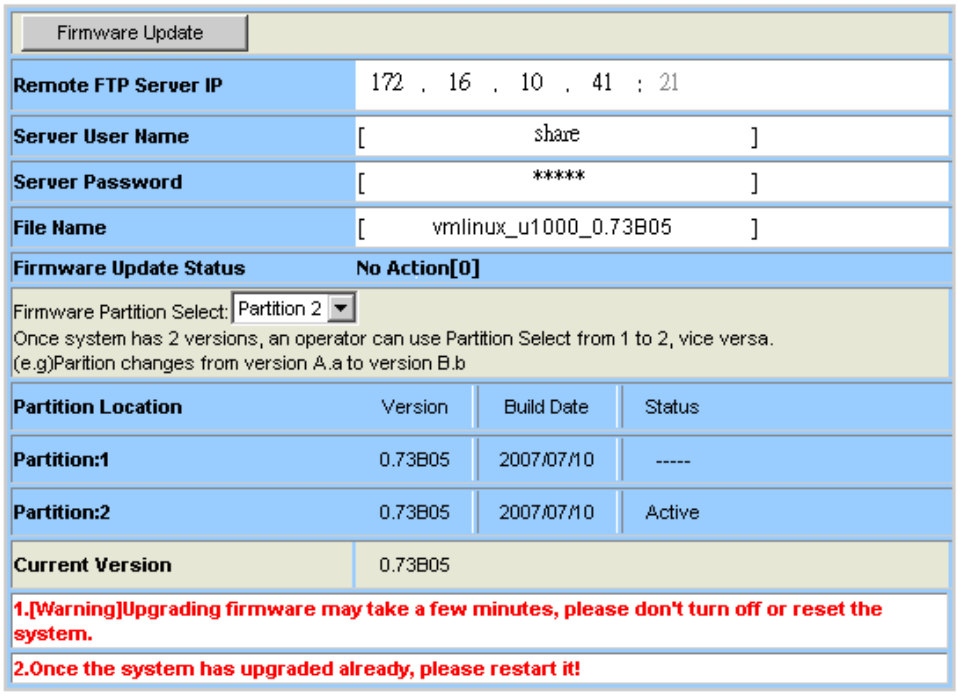
(***Note:*** the 'Active' status of the firmware partition information means the active partition for next time restart, not current running partition. You can see which partition is current running partition by referring to the Current Version.)

2. The VX-1000HDX/MDX provides two firmware memory partitions. If you want to change the firmware partition for booting, use the following commands (if you change to the non-active partition, system will restart immediately):

enable //go to enable mode
configure //go to configuration mode
firmware partition <number> //select partition 1 or 2 for next power-on

For Web:

On the menu tree, click on **Maintenance** --- > **Firmware Update**. The *Firmware Update* page is displayed. Once you have entered all the necessary values, click on **Firmware Update** button to start updating the firmware.



Label	Description
Firmware Update	Once you have typed in the parameter values, click on this button to start firmware update.
Remote FTP Server IP	Type in the IP address of the FTP server.
Server User Name	Type in the ftp user name.
Server Password	Type in the ftp password.
File Name	Type in the firmware filename.
Firmware Update Status	This field shows current status of firmware update process.
Firmware Partition Select	Select firmware memory partition (Partition 1 or 2). If you change to the other partition (not current partition), the system will restart immediately.

Partition Information	This section displays the partition information including firmware version, updating date, and status (active or not). Note that active partition means the partition for next power-up, not current partition in use. You can refer to **Current Version** to know which partition is the current partition in use. When you update the firmware, new firmware will be written to the partition that is not currently in use.

FTP Get in progress:

The following message is displayed during getting file from FTP server.

incoming cluster id 0
FTP SERVER IP=172.16.10.219
Waiting for FTP Session (about 30 sec..)

Firmware Write in progress:
The Flash Write process may take a few minutes; **you must not turn off or reset the system during the process.**

Current Service	**james@172.16.10.41,File:vmlinux_u1000_0.73B05**
Firmware Update Status	**/ FLASH WRITE IN PROGRESS /**
1.[Warning]Upgrading firmware may take a few minutes, please don't turn off or reset the system.	
2.Once the system has upgraded already, please restart it!	

Firmware Write successfully:
When the Flash Write process has completed successfully, the Firmware Update Status shows “Firmware has upgraded already”. You can now restart the system.

Firmware Update

Remote FTP Server IP	. . . : 21
Server User Name	[ ]
Server Password	[ ]
File Name	[ ]
Firmware Update Status	**Firmware has upgraded already[7]**

Firmware Partition Select: Partition 1
Once system has 2 versions, an operator can use Partition Select from 1 to 2, vice versa.
(e.g)Parition changes from version A.a to version B.b

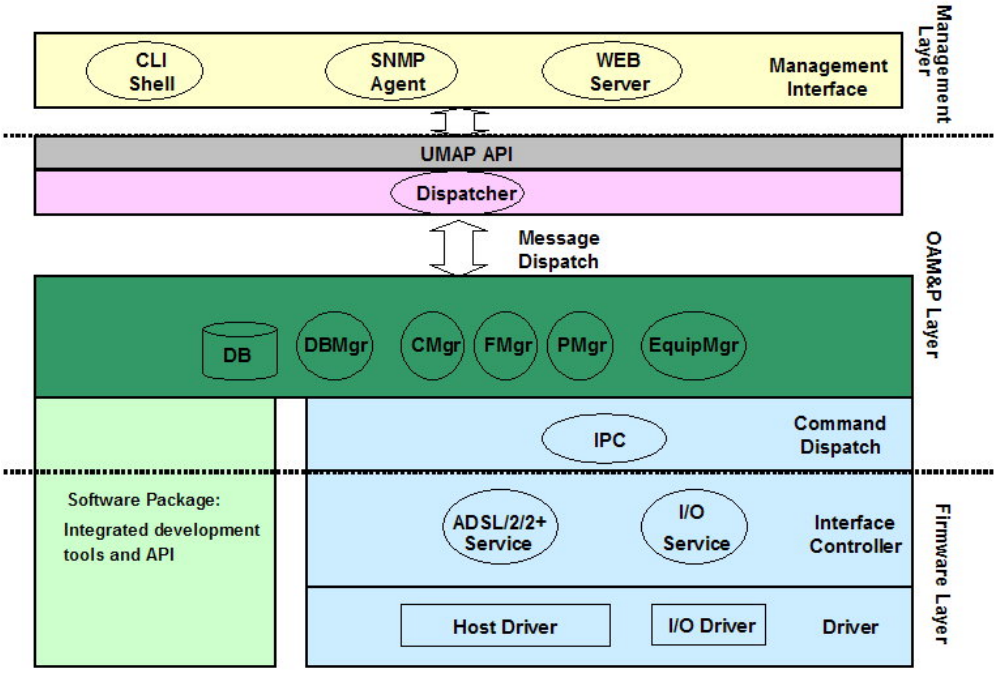
Partition Location	Version	Build Date	Status
Partition:1	0.73B05	2007/07/10	Active
Partition:2	0.73B05	2007/07/10	-----
Current Version	0.73B05		

1.[Warning]Upgrading firmware may take a few minutes, please don't turn off or reset the system.
2.Once the system has upgraded already, please restart it!

Software Introduction

3.1 General Overview

The software architecture of the DSLAM is shown in the figure below. It can be divided into three layers: the management layer, the OAM&P layer, and the firmware layer.



Management Software Model

As in the figure, CLI shell, SNMP agent, and WEB server are in the top-most layer (management layer) of the system software and offering OAM&P function of the DSLAM based on the conceptual management features as follows:

- Configuration Management
- Performance Management
- Fault Management

The DSLAM uses flash memory as the database (DB) to store system configuration parameters, alarms and events. The firmware layer includes ADSL drivers, Memory and I/O control, etc.

3.1.1 Features of Management Interface

- Support CLI, SNMP (v1, v2c), and web-based GUI management interface through both in-band and out-band channels
- Support up to 10 CLI sessions at the same time
- The in-band management connection of the system is the highest priority of all supported in-band traffic categories
- Support out-band management via:
  - UART at full duplex line rate of 9600 bps (Craft port)
  - 10/100 base-T Ethernet
- Support Telnet interface for remote operators to login system operating console
- Support up to 32 configurable SNMP trap destinations and allow the SNMP traps to be sent to any specified SNMP aware device, for instance, Network management center

3.2 Configuration Management

The configuration management contains the following aspects:

1. System Setup, such as setup for management IP address/net mask, GBE interface (including to enable/disable and query the administrative/operational status of the trunk port), line port (including to enable/disable/reset ADSL port, query the administrative/operational status of the port, and bind profiles on a per port basis), CLI session and timeout, Cluster, SNTP, IP routes, and user administration (including login authorization and provides three security levels).
2. Bridge Configuration (see “Bridge Configuration” below for more description)
3. ADSL Configuration (see “ADSL configuration” below for more description)
4. ATM traffic management
5. SNMP setup

The configuration management provides detecting and reporting to the operators through SNMP Trap for all memory updates reflecting changes in the system configuration. It also provides logging the changes in the operational state and making this information available (on-demand) to the operators over the operation interface.

The system contains a database (DB) to store all the provisioning data so that the configuration can be restored in re-booting. Authorized operators can query the DB to obtain configuration data.

3.2.1 Bridge Configuration

The bridge configuration of the VX-1000HDX/MDX includes the following aspects:

- Interface setup
- VLAN configuration: static VLAN, protocol based VLAN, VLAN translation, and IP/MAC anti-spoofing.
- Spanning Tree configuration
- Access Control: Filtering, VLAN priority remark, rate limit, and priority queue mapping.
- Forwarding database
- PPPoE and DHCP Relay
- IGMP configuration
- IPoA configuration

3.2.2 ADSL Configuration

Configuration for an ADSLx user port is provisioned by the parameter set, which is a group of attributes that determine the user port behaviors; and we call it as profile. The VX-1000HDX/MDX provides a profile-based provisioning per the definition of ITUT G997.1 and RFC 2662 for ADSL line configuration data and a mechanism to associate the ADSL port to these profiles. One or more ADSL lines may be configured to share parameters of a single profile.
The ADSL profiles of VX-1000HDX/MDX include:

- Service Profile

  The parameters include Rate adaptive mode selection, Min/max/planned bit rate, Interleaving Max delay, and Minimum impulse noise protection.

- Spectrum Profile

  The parameters include the Power management setting, Min/max/target noise margin, allowed ADSL modes of operation, Carrier mask, RFI band data, Maximum nominal aggregate transmit power, Maximum PSD level, PSD shape (for ADSL2+), Power back off initiation, and Maximum aggregate receive power.

- TCA Profile

  The parameters include ESs, SESs, UASs for interval and day PM, and LOS, LOF, LOPWR, LOL, Error Frame for interval PM only.

The system provides up to 120 Service profiles and Spectrum profiles respectively, and provides up to 64 TCA profiles. One of the profiles is a fix default that cannot be modified; users are allowed to create, delete, and edit the other profiles. Each profile contains a parameter set for downstream and upstream direction respectively. Users can also observe the actual values of these parameters through CLI, Web-GUI, or EMS.

The ADSL configuration also includes the function for user to query the line status, the physical layer status, and the channel interface status for ATU-C and ATU-R. The status information includes the attenuation rate, actual net data rate, the line attenuation, SNR margin, transmission power, actual interleaving delay, channel characteristics per subcarrier, quiet line noise PSD, …etc.

3.3 Performance management

Performance management supports performance monitoring by collecting and thresholding performance parameter counters against 15-miniute intervals for each interface and module respectively. Users can query the data of these parameters through CLI, Web-GUI, or EMS.

Performance statistics include the following:

1. Statistics for current interval:
   A real-time aspect contains the reflection of the current value situation before the new interval. The current value includes values of current 15-min interval and current 1-day interval.
2. Statistics history at 15-minute basis:
   The system stores previous 96 statistics of PM parameters at 15-min interval for retrieving.
3. Statistics history at 1-day basis:
   The system stores previous 1 statistics of PM parameters at 1-day interval for retrieving.

Most of the performance parameter thresholds are user-programmable. The VX-1000HDX/MDX uses a threshold crossing alert (TCA) to notify the management system when one of the counts during a measurement interval exceeds its threshold.

The TCA contains the following information:

- Specific interface involved
- Error condition identifying the measurement type
- Value of the parameter
- Occurrence date and time of the event

The performance management also provides the traffic counter including transmitted packets, error packets and discarded packets for each interface (network and subscriber interface) and ATM cell counter in both transmit and receive direction. Users can observe these data through CLI, Web-GUI, or EMS.

ADSL PM

The VX-1000HDX/MDX provides the following ADSL PM statistics:

Item	Description
ATUC_LOS	Loss of signal count
ATUC_LOF	Loss of frame count
ATUC_LOM	Loss of margin count
ATUC_ES	Errored Seconds
ATUC_SES	Severely Errored Seconds
ATUC_UAS	Unavailable Seconds
ATUC_ReInitCounter	The number of times the modem left showtime and tried to re-initialize the line because of detection of a persistent defect
ATUC_FailedInitCounter	The number of times the modem tries to initialize the line but fails.
ATUC_CU	User Total Cell Count
ATUC_CD	Delineated Total Cell Count
ATUC_HEC	ATM Header Error Count
ATUC_IBE	Idle Cell Bit Error Count
ATUC_CVS	The counter associated with the number of Coding Violations encountered by the channel.
ATUC_FECCS	The counter associated with the number of corrected codewords encountered by the channel.
ATUR_LOS	Far End Loss of signal count
ATUR_LOF	Far End Loss of frame count
ATUR_LOM	Far End Loss of margin count
ATUR_LPR	Far End Loss of power count
ATUR_LPR	Far End Loss of power failure count
ATUR_ES	Far End Errored Seconds
ATUR_SES	Far End Severely Errored Seconds
ATUR_UAS	Far End Unavailable Seconds
ATUR_HEC	Far End ATM Header Error Count
ATUR_IBE	Far End Idle Cell Bit Error Count
ATUR_CVS	The far end counter associated with the number of Coding Violations encountered by the channel.
ATUR_FECCS	The far end counter associated with the number of corrected code words encountered by the channel.

The VX-1000HDX provides the following ADSL PM thresholds:

NE threshold	FE threshold
15min ES threshold	15min ES threshold
15min SES threshold	15min SES threshold
15min UAS threshold	15min UAS threshold
15min LOS threshold	15min LOS threshold
15min LOF threshold	Not support
Not support	15min LOPWR threshold
15min LOL threshold	Not support
15min ErrFrm threshold	15min ErrFrm threshold
24hour ES threshold	24hour ES threshold
24hour SES threshold	24hour SES threshold
24hour UAS threshold	24hour UAS threshold

3.3.1 RMON Feature

The DSLAM supports performance statistics defined in RMON MIB groups 1 (Ethernet statistics), 2 (history control), 3 (alarm), and 9 (event) per RFC 2819 for all network uplink 10/100/1000 ports. The supported parameters are as follows:

RMON ETH Statistics variables

Variable	Description
DropEvents	Monitoring rx dropped packets
Octets	Monitoring rx bytes packets
Pkts	Monitoring rx packets
BroadcastPkts	Monitoring rx broadcast packets
MulticastPkts	Monitoring rx multicast packets
CRCAlignErrors	Monitoring rx error alignment packets
UndersizePkts	Monitoring rx undersize packets
OversizePkts	Monitoring rx oversize packets
Fragments	Monitoring rx fragments packets
Jabbers	Monitoring rx jabber packets
Collisions	Monitoring tx single collision packets
Pkts64Octets	Monitoring tx 64 octets
Pkts65to127Octets	Monitoring tx 65 to 127 octets
Pkts128to255Octets	Monitoring tx 128 to 255 octets
Pkts256to511Octets	Monitoring tx 256 to 511 octets
Pkts512to1023Octets	Monitoring tx 512 to 1023 octets
Pkts1024to1518Octets	Monitoring tx 1024 to 1518 octets

RMON ETH History Control variables

Variable	Description
HistoryDropEvents	Monitoring rx dropped packets
HistoryOctets	Monitoring rx bytes packets
HistoryPkts	Monitoring rx packets
HistoryBroadcastPkts	Monitoring rx broadcast packets
HistoryMulticastPkts	Monitoring rx multicast packets
HistoryCRCAlignErrors	Monitoring rx error aligment packets
HistoryUndersizePkts	Monitoring rx undersize packets
HistoryOversizePkts	Monitoring rx oversize packets
HistoryFragments	Monitoring rx fragments packets
HistoryJabbers	Monitoring rx jabber packets
HistoryCollisions	Monitoring tx single collision packets
HistoryTxBytes	Monitoring tx bytes
HistoryTxPackets	Monitoring tx packets
HistoryTxMulticast	Monitoring tx multicast
HistoryTxBroadcast	Monitoring tx broadcast
HistoryUtilization	Monitoring tx Utilization

3.4 Fault Management

Fault management is conceptually partitioned into two levels: the system top level, and interface-specific level. Both levels are alarm-level configurable and can be Major and Minor. All the alarms are mask-able.

Fault management provides the alarm output through hardware output interface (on the system front panel) and visible indicator (LED). The alarm/status indications are automatically generated as a result of certain events/conditions. The VX-1000HDX/MDX supports query of all current alarm status. It is also able to keep 256 records of historical alarms and events respectively.
The unit provides the ability to group alarms in a hierarchical alarm presentation scheme. Alarms of the same rank can exist at the same time. A lower-ranking alarm will be demoted if a higher-ranking alarm is raised for the same object. For example, if a far-end LOS is raised on a circuit and then a far-end LPR is raised on the circuit, the LPR alarm stands and the LOS closes. The alarm hierarchy used in the VX-1000HDX/MDX system is shown in the following table:

Alarm Hierarchy

Priority	Alarm Type
Highest	all activation failures (ADSL_COMMF_FE or ADSL_NOPEER_FE)
—	far-end LPR
—	near-end LOS or far-end LOS
Lowest	near-end LOF or far-end LOF (near-end and far-end are independent; for example, FE-LOS does not restrain NE-LOF)
Note: 1.LOM, LCD, and NCD are not included in the alarm hierarchy; they're treated independently. 2.The PM counters LPR, LOS, and LOF follow the alarm hierarchy rule. When these alarms exist at the same time, only the PM counter of a higher-ranking alarm will count (the PM counters of other lower-ranking alarms will not).	

System Alarms

The VX-1000HDX/MDX provides the following System alarms:

- House Keeping Alarm 1
- House Keeping Alarm 2
- House Keeping Alarm 3
- House Keeping Alarm 4
- Fan Failure Alarm
- Fan card unequipped alarm
- Above Temperature
- Below Temperature
- Self-test Fail
- DSP Fail - you can see which DSP chip is fail from the user interface (Web GUI, CLI, etc.). There is a number 1 ~ 4 in the alarm message/description corresponding to the DSP chip 1 ~ chip 4

GBE Alarms

The VX-1000HDX/MDX provides the following alarms for GBE interfaces:

- GBE1 SFP Loss of Signal
- GBE2 SFP Loss of Signal

ADSL Alarms

The VX-1000HDX/MDX provides the following ADSL alarms:

- LOS (Loss of Signal) -Near End/Far End
- LOF (Loss of Frame) -Near End/Far End
- LOM (Loss of Margin) -Near End/Far End
- LCD (Loss of Cell Delineation) -Near End/Far End
- NCD (No Cell Delineation) -Near End/Far End
- LOPWR (Loss of Power) -Far End
- COMMF: Unable to communicate with peer modem -Far End
- NOPEER: No peer present – Far End

3.5 Loopback Testing

The VX-1000HDX/MDX supports ATM and ADSL loop diagnostics.

ATM:
The system provides F5 end-to-end or segment loopback.

ADSL:
The system provides Dual Ended Loop Testing (DELT) for each ADSL line on a per port basis.

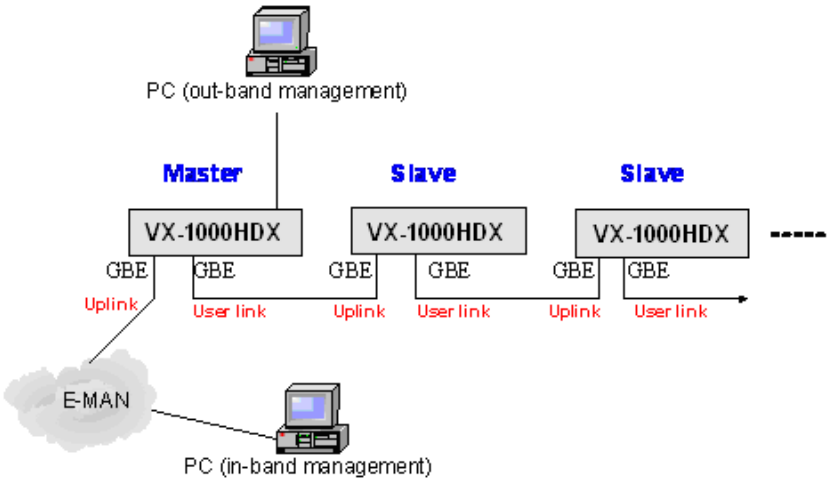
The following test parameters are supported:

- Channel Characteristics Function H(f) per subcarrier (CCF-ps),
- Quiet Line Noise PSD QLN(f) per subcarrier (QLN-ps),
- Signal-to-Noise Ratio SNR(f) per subcarrier (SNR-ps),
- Line Attenuation (LATN),
- Signal Attenuation (SATN),
- Signal-to-Noise Ratio Margin (SNRM),
- Attainable Net Data Rate (ATTNDR),
- Far-end Actual Aggregate Transmit Power (ACTATP),
- Near-End Actual Aggregate Transmit Power (ACTATP).

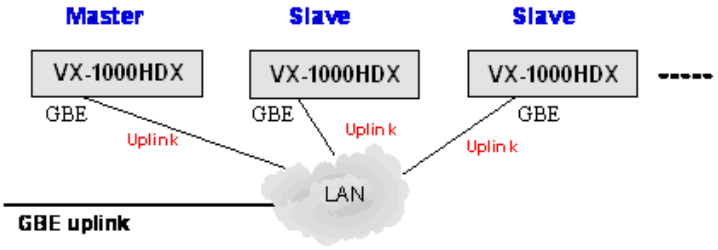
3.6 Cluster Feature

The DSLAM supports Cluster feature that can make a group of NEs (network elements) work together as a single NE from the management point of view. Operators can manage the NEs in a cluster, called cluster nodes, via the same single IP address in terms of CLI, Web-based GUI or SNMP based management interfaces. The DSLAM unit currently provides cluster feature that a cluster can include up to four cluster members (NEs). There are one Master and the other members are all Slaves in a cluster. The Master works as a gateway of the Slaves, and it also can forward CLI/Web/SNMP commands to the destination Slave. The Slaves can execute the commands and respond to the Master.

There are two possible network topologies for conducting a Clustering Management group: Daisy chain and Star.



Cluster network topology – Daisy Chain



Cluster network topology – Star

WEB Management

Web Configuration Tool Overview

To access Web Configuration Tool on the VX-1000HDX/MDX:

1 Connect a PC to the console port of the DSLAM. At the console, type the following CLI command:

WDS:>enable /*enter the enable command mode from initial mode*/

WDS:%show management all /*display all in-band and out-band management IP setting*/

Note that the default in-band/out-band IP address of the VX-1000HDX/ MDX is 192.168.100.1/192.168.1.1.

2 At your web browser, enter the URL you retrieve by using the above command.

If you need to change the accessing port number (default is 80) of the Web Configuration Tool, use the following CLI command (with the correct values added):

WDS:%configure /*enter the configuration command mode from enable mode*/

WDS:(conf)#http port <number> /*set http port number*/

3 Logging in to Web Configuration Tool:

Once you connect to the DSLAM, a login page is displayed. You must enter your username and password to access the pages. The default login username and password are as follows:

User Name: **admin**

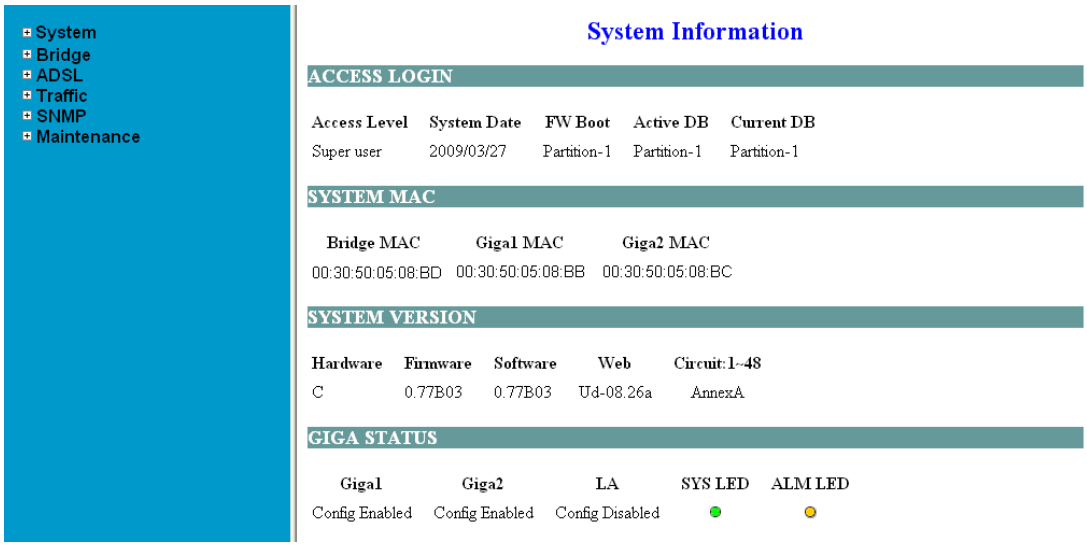
Password: **admin**

Click on the *Sign in* button.

You are now ready to configure your VX-1000HDX/MDX using the Web Configuration Tool.

Web Configuration Tool login page

4 The following page is displayed. This is the homepage of the Web Configuration Tool.



Web Configuration Tool homepage

About Web Configuration Tool Pages

The Web Configuration Tool provides a series of web pages for users to setup and configure the VX-1000HDX/MDX System. These pages are organized into six main topics including **System**, **Bridge**, **ADSL**, **Traffic**, **SNMP**, and **Maintenance**. You can select each topic from the menu on the left-hand side of the main window. Below table lists the various pages of the web configuration tool.

The exact information displayed on each web page depends on the specific configuration that an operator is using. The following chapters provide a general description of the setup and configuration details.

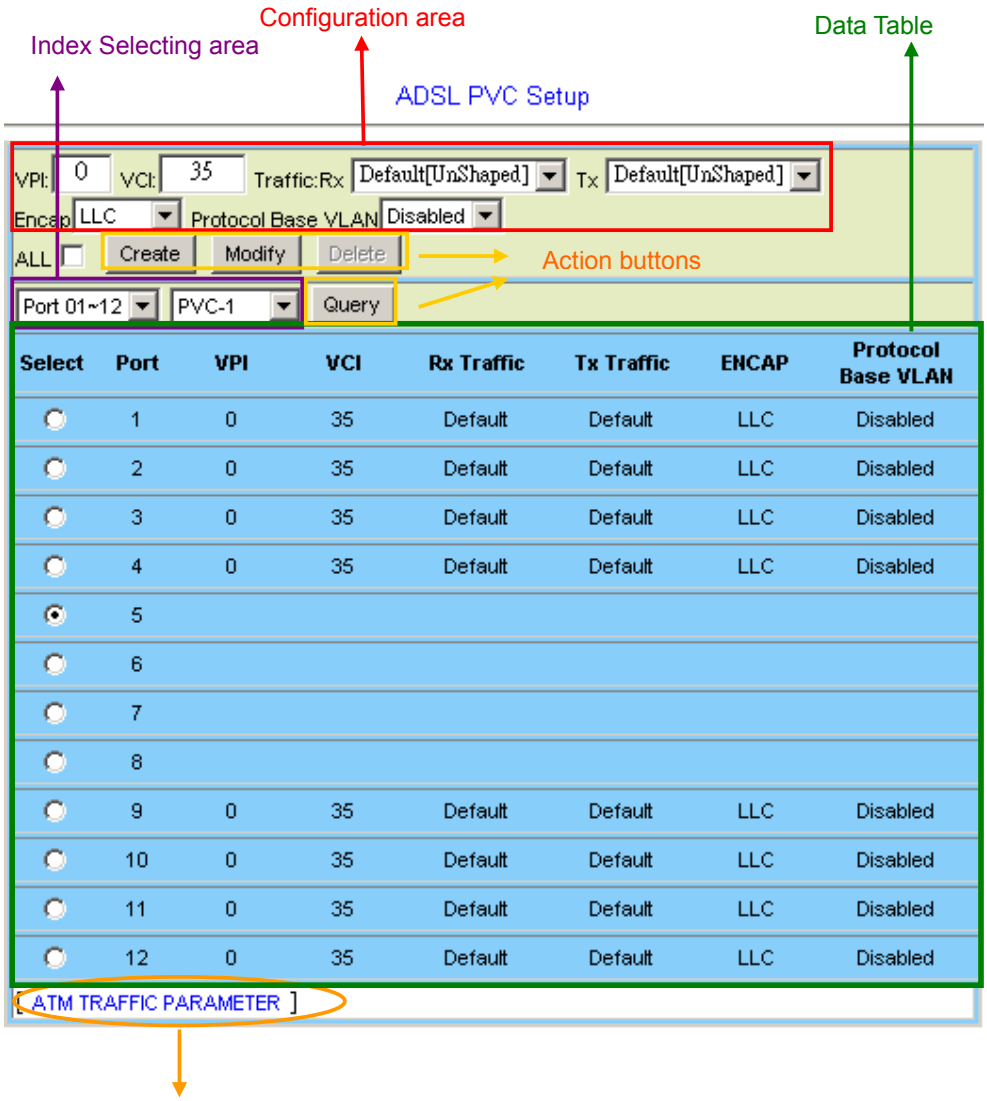
Pages of the Web Configuration Tool

System	System Information	
	Board IP Setup	
	Ethernet Port Service	
	ADSL Port Service	
	CLI Setup	
	Cluster Setup	
	System Inventory	
	SNTP	
	IP Routes	
	User Administration	
	Duplicator	
Bridge	Interface Setup	GIGA Bridge
		ADSL PVC
		ADSL Bridge
		ADSL Port Security
	VLAN Configuration	Static VLAN
		Protocol Based VLAN
		Translation VLAN
		Static Allowed IP
		MAC Spoofing
	Spanning Tree	Spanning Tree Protocol
		STP Port Settings
	Access Control	Filtering
		VLAN Priority Remark
		Rate Limit
		Priority Queue Mapping
	Forwarding	TP Forwarding DB
		Forwarding Static
	Relay	DSL Line Identify
	IGMP	Protocol & Route Port
		IGMP Profile

		IGMP Multicast
	IPOA	BRAS MAC
		Interface Setup
ADSL	Profile	Service Profile (main)
		Service Profile (Channel)
		Spectrum Profile (main)
		Spectrum Profile (ADSLx)
		TCA Profile
	Data & Inventory	Inventory
		Loop Test
		Carrier Data
		OP Data
	Line Config & Info	Line Configuration
		Line Information
Traffic	ATM Traffic Descriptor	
SNMP	SNMP Community	
	SNMP Target	
	SNMP Notify	
Maintenance	SYS Log Server	
	Database	
	Firmware Update	
	ATM Loopbacks	
	Fault Management	Alarm/Event
		Alarm Profile
		Hardware Temp.
	Performance Monitoring	System Utilization
		Ethernet Statistics
		ATM Statistics
		RMON
		ADSL Day/Interval

Operating Examples

This section explains how to operate in the web pages of this tool.

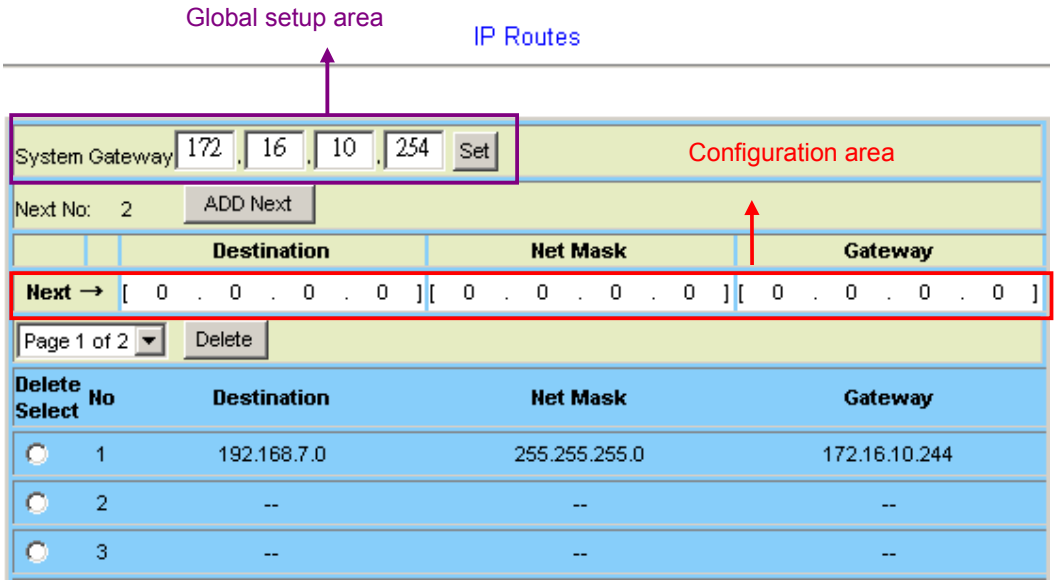


Click on the hyperlinks below on each configuration page will lead you to the related page(s) directly without the need to search in the menu tree.

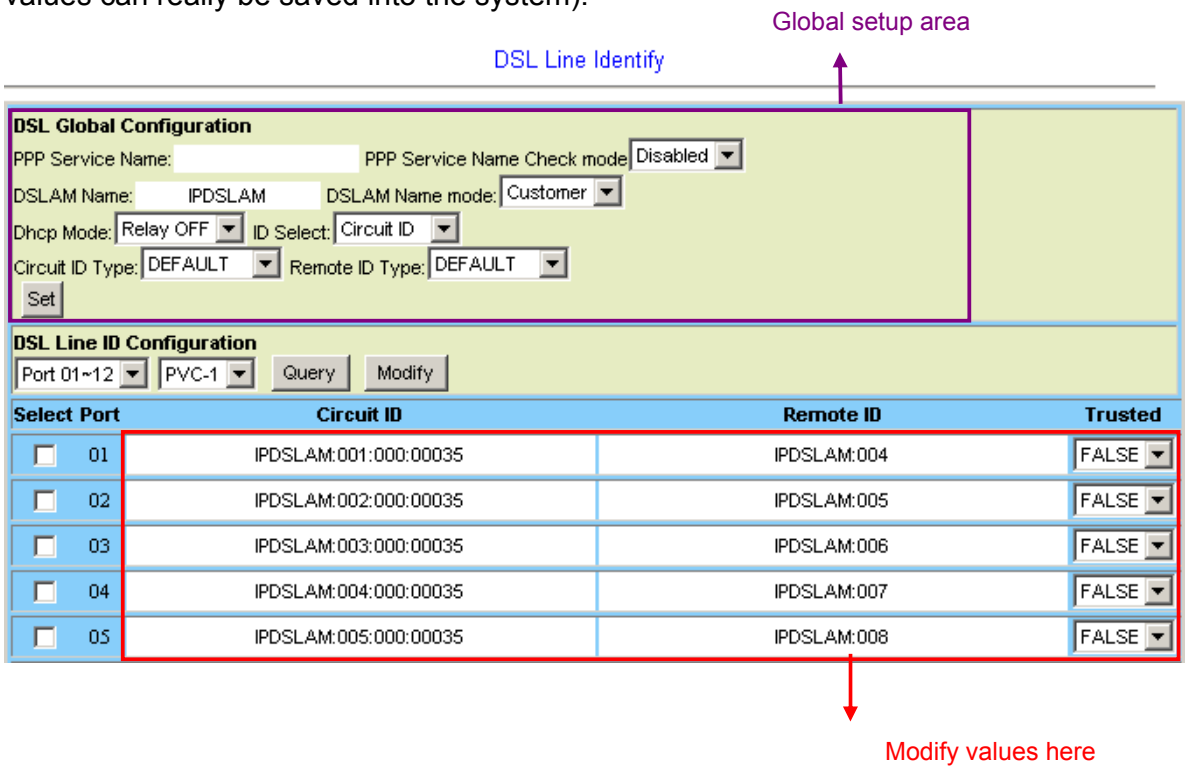
The Index Selecting area is usually for selecting the range of interface(s) to be configured. In this case, the filters (such as link type, circuit number, PVC number, or bridge port index) will enable the operator to easily locate the target interface(s) that he would like to provision. The Confi- guration area is for setting the parameter value of the entries in the table. This area shows the data of selected entry in Data Table to allow operator to modify the parameter values. The Data Table is for listing the setting of each interface (bridge port). Often, there is a radio button for each port. By clicking on the radio button, you can specify which entry to be created, modified, or deleted.
For the above example, first you must select the link type, circuit number range and PVC to identify the range of interfaces, and then the corresponding data of those interfaces will be listed in Data Table. Click on the radio button to select a circuit and modify the parameter values in the

Configuration area. Then click on **Create** to create a new entry or **Modify** to change the setting of an existing entry. You can click on **Delete** to remove an entry. Click on **Query** to get current data whenever you want to make sure actual status of the system.

In some pages, there is the Global setup area (often with a **Set** button) on top of a page. After fill up the fields in this area, you have to click on **Set** to save the modification. Also the Configuration area is often located at the top inside the Data Table.



In some pages, you modify the data directly in the entry fields (remember to click on the check box or radio button to select the entry before you click on Modify button; thus the new values can really be saved into the system).

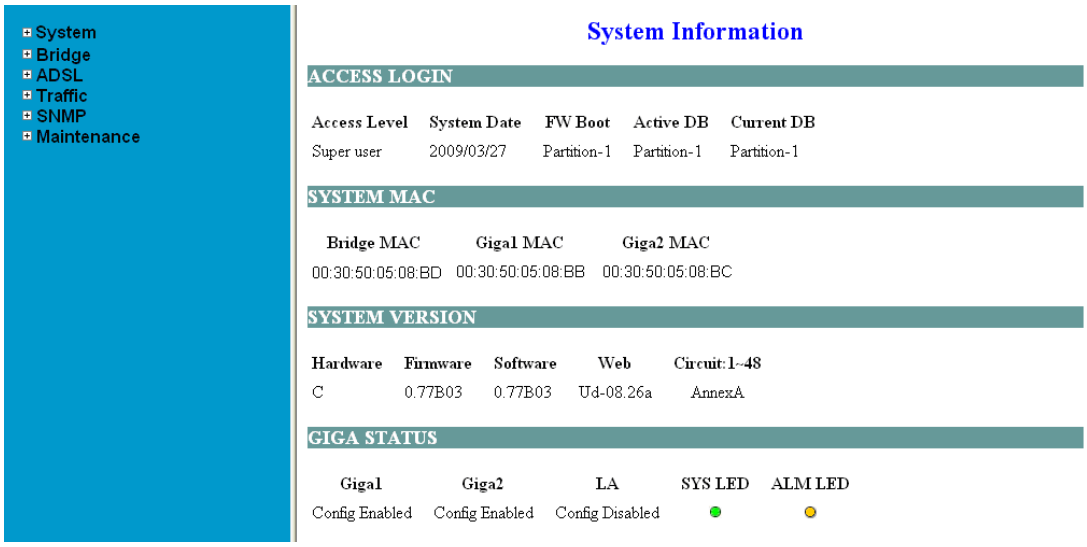


4.1 System

4.1.1 System Information

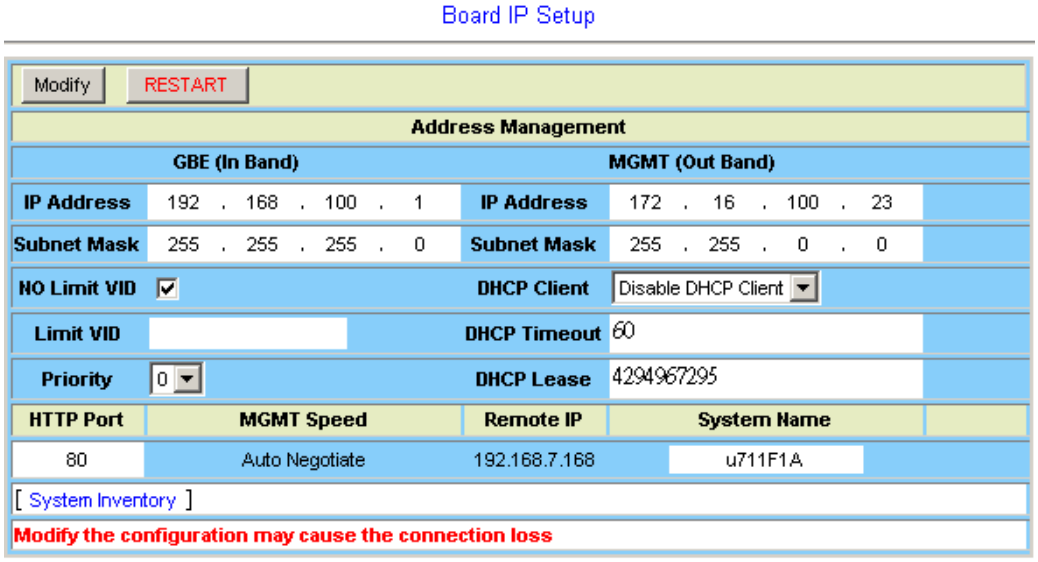
The System Information page (the default page you'll see after you login the web configuration tool) contains information about the user access level, current system date and time, current boot configuration partition, system MAC address, system HW/SW/FW version, web configuration software version, supported subscriber line type (AnnexA or AnnexB), GBE interface status, and LED status (SYS and ALM).

From the System menu, click on System Info. The following page is displayed:



4.1.2 Board IP Setup

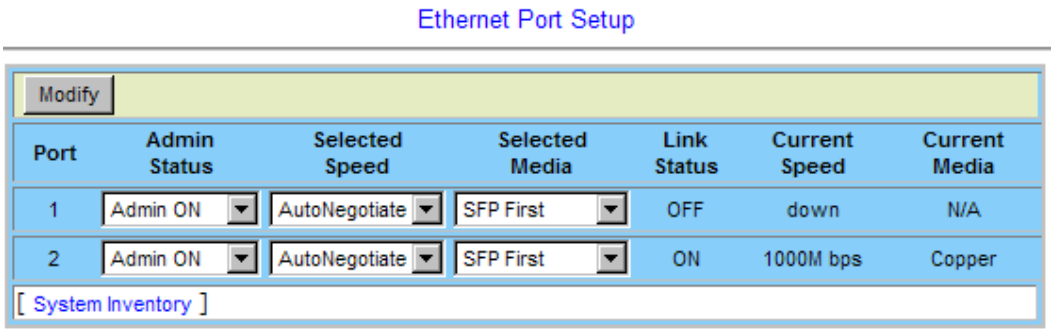
This option allows you to configure the Gigabit Ethernet interface and out band management interface including the management IP setting, DHCP configuration, HTTP port setting, etc. From the *System* menu, click on *Board IP Setup.* The following page is displayed:



Label		Description
GBE (In Band)	IP Address	Type in the IP address of the DSLAM for in-band management.
	Subnet Mask	Type in the in-band subnet mask of the DSLAM.
	No Limit VID	Select this checkbox if no specific in-band management VLAN is required, and the setting in "Limit VID" parameter will be ignored.
	Limit VID	The VLAN ID for individual in-band management VLAN.
	Priority	Select the VLAN priority level (0~7) of the in-band management traffic sent out from GBE port.
MGMT (Out Band)	IP Address	Type in the out-band IP address of the DSLAM.
	Subnet Mask	Type in the out-band subnet mask of the DSLAM.
	DHCP Client	Click on the drop-down list and select Enable, Disable, or Renew (obtain IP address again) DHCP Client function. This option is used to get a dynamic IP address via DHCP for out-band management interface (MGMT port).
	DHCP Timeout	Type in DHCP Timeout (second). Valid value: 1~4294967295. Default is 60.
	DHCP Lease	Type in DHCP lease time (second). Valid value: 1~4294967295.
HTTP Port		Shows current HTTP port setting for Web access. You can modify http port setting in this field.
MGMT Speed		Shows current speed / mode of the MGMT port.
Remote IP		Shows the IP address of the management PC currently connected to this DLSAM.
System Name		You can modify the name of the system here.
Modify		Click on this button to submit the modification.
RESTART		Click on this button to restart the system.

4.1.3 Ethernet Port Service

This option allows you to set the administration state, select the speed mode, and select the transmission medium for the Gigabit Ethernet ports. From the *System* menu, click on *Ethernet Port Service.* The following page is displayed:



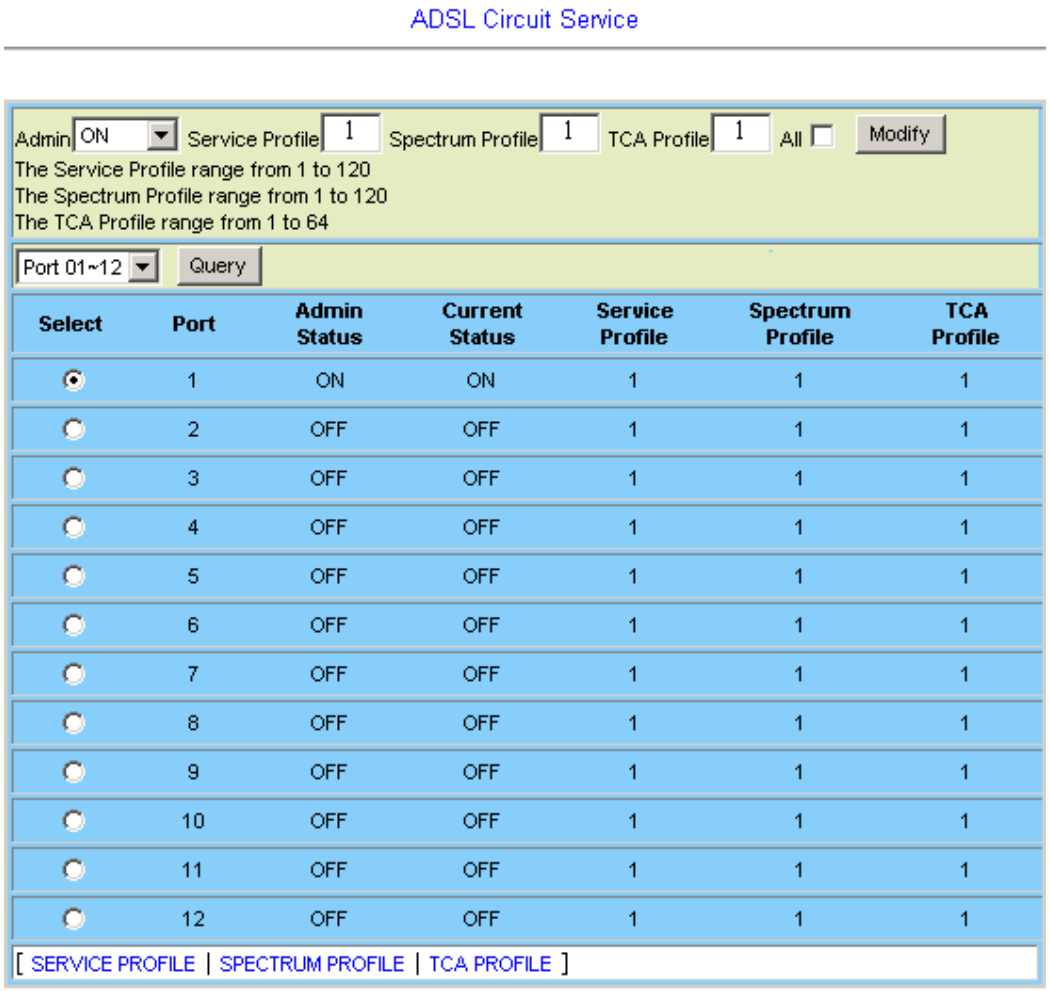
Ethernet Port Service Setup

Label	Description
Port	This field shows port number of the Gigabit Ethernet interfaces.
Admin Status	Click on the drop-down list and select the administrative state (ON/OFF) to enable/disable GBE ports.
Selected Speed	Click on the drop-down list and select the speed mode for trunk GBE port. Supported options are: AutoNegotiate, 100Mbps Half (duplex), 100Mbps Full (duplex).
Selected Media	Click on the drop-down list and select the cable mode for trunk GBE port. Options are: SFP First: when both optical and electrical uplinks are connected, optical interface is chosen to transport data. Copper First: when both optical and electrical uplinks are connected, electrical interface is chosen to transport data.
Link Status	Show operational status of the trunk ports (ON/OFF).
Current Speed	Show current speed mode of the trunk ports.
Current Media	Show current uplink transmission medium (via copper or SFP). This field will show N/A when Oper Status is OFF.
Modify	Click on this button to submit the modification.

4.1.4 ADSL Port Service

This option allows you to setup the service status of the line ports and to bind the selected service profiles and spectrum profiles. Also, you can query current setting and the operational status of the line ports. From the *System* menu, click on *ADSL Port Service.* The following page is displayed:

First click on the drop-down list to select the port range to be displayed. Remember to click on the radio button to select a port to be modified (or select the **All** checkbox to modify all ports of the page at a time).



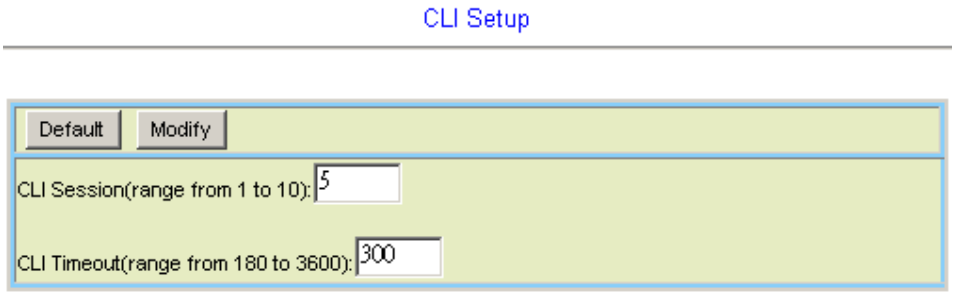
ADSL Circuit Setup

Label	Description
Admin	Click on the drop-down list and select the Administrative status: ON, OFF, or RESET.
Service Profile	Type in the index of the Service Profile (1~120).
Spectrum Profile	Type in the index of the Spectrum Profile (1~120).
TCA Profile	Type in the index of the TCA Profile (1~64).
All	Select the check box to select all circuits of current page.

Modify	Click on this button to submit the modification.
Query	Click on this button to get most recent status of the circuits.
Select	Click on the radio button to select the port to be modified.
Current Status	This field shows the operational status of the line ports. Possible values are ON (enabled), OFF (disabled), and Testing (in loop testing now).

4.1.5 CLI Setup

This option allows you to modify the timeout setting for a CLI session and the allowable number of CLI sessions. From the *System* menu, click on *CLI Setup.*



CLI Setup

Label	Description
CLI Session	Allowable number of CLI sessions at the same time. Valid value: 1~10.
CLI Timeout	CLI session will be closed once the idle time exceeds this timeout value. Valid value: 180~3600 (sec).
Default	Click on this button to set default values (CLI session: 5, CLI timeout: 300 sec).
Modify	Click on this button to submit the modification.

4.1.6 Cluster Setup

This option allows you to setup Cluster function, which can make a group of NEs (network elements) work together as a single NE from the management point of view. Before you group a Master and a Slave IPDSLAM, some parameters need to be well configured:

1. **Cluster domain name**:

The group name for a cluster. Must be the same on Master and Slave.

2. **Cluster IP address**:

IP address to be used for remote management when Master and Slave are grouped together.

3. **NE cluster name**:

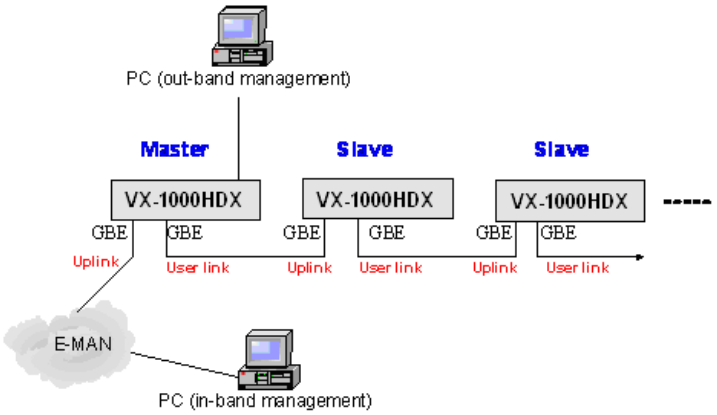
A name to identify Master or Slave.

4. Set private IP address on in-band port for both Master and Slave IPDSLAM. The private IP is used for communication between Master and Slave. The management center actually uses Cluster IP address for remote management.

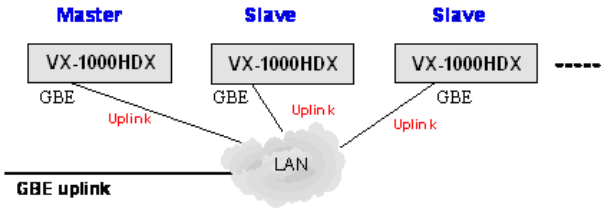
5. Master and Slave need to be configured with same management VLAN.

6. The default gateway should be configured to the router that is aware how to route management traffic to Management Center of the management network. The setting of Cluster default gateway should be the same between Master and Slave.

Currently a VX-1000HDX/MDX cluster can support up to four cluster members (NEs). The IPDSLAMs in a cluster must all be in-band connected through the GBE ports. There are two possible network topologies for conducting a Clustering Management group: *Daisy chain* and *Star*.



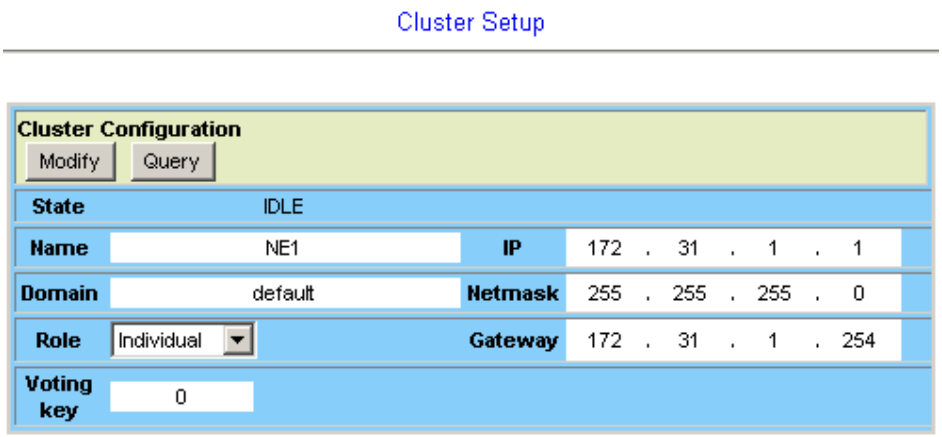
Cluster network topology – Daisy Chain



Cluster network topology – Star

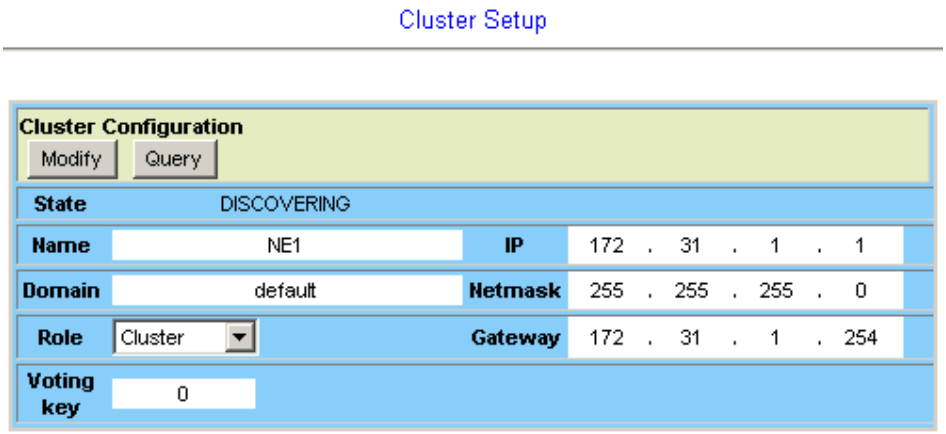
For a cluster in Daisy Chain topology, each IPDSLAM must have one GBE port configured as Uplink and the other one configured as User link.

From the *System* menu, click on *Cluster Setup.* The following page is displayed:

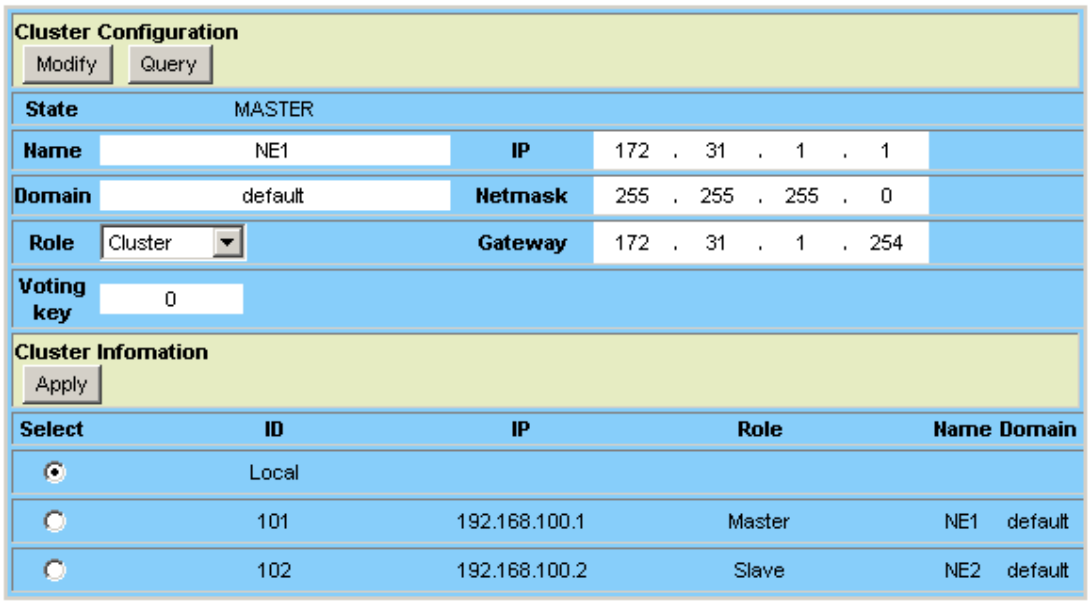


By default, the DSLAM is not in a cluster. The state of the Cluster Configuration shows “IDLE” and the Role shows “Individual”.

To make the DSLAM join a cluster, select the Role as “Cluster” or “Slave only” according to your plan and then click on Modify. The state of the Cluster Configuration will show from **DISCOVERING** to **VOTING** to **MASTER** or **SLAVE** at last.



The following figure shows the Cluster Setup page of a cluster containing two cluster members. You will see the following page if you’re connecting directly to the Master via its in-band/ out-band IP address or connecting to the Cluster IP “172.31.1.1”. You can control all the DSLAMs in a cluster by connecting to the Cluster IP address, or by directly connecting to the Master IPDSLAM via its in-band or out-band IP address that is configured in the *Board IP Setup* page.

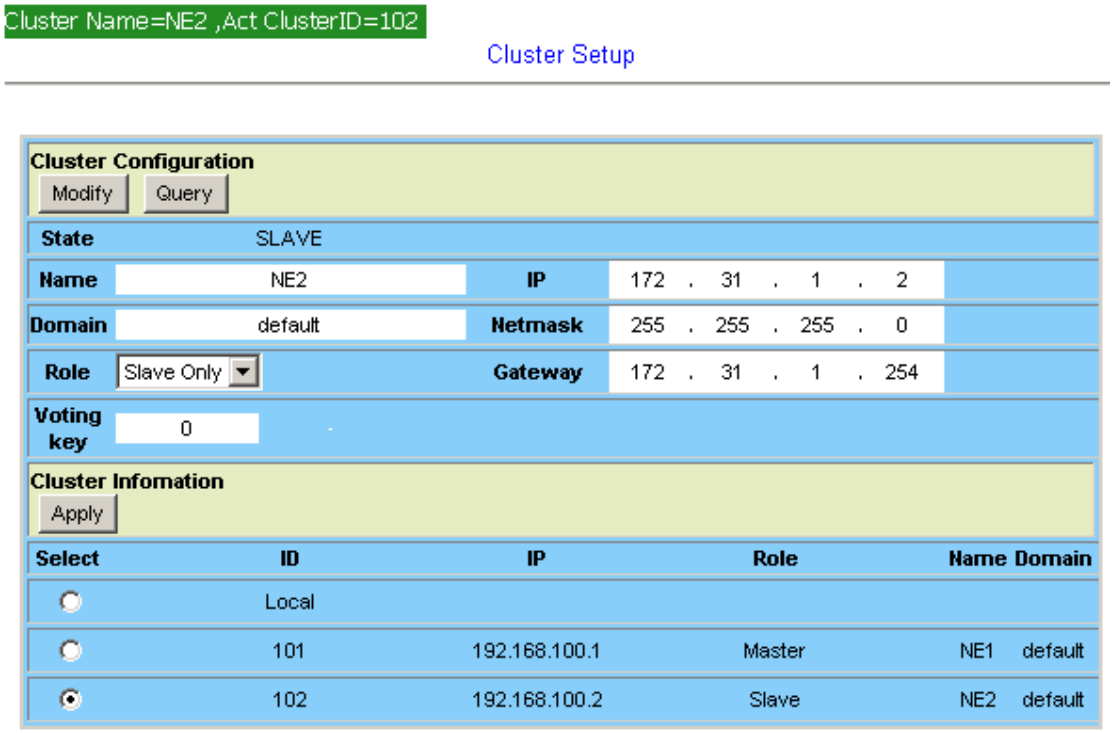


Cluster Setup

Label	Description
Name	Type in the NE name in the cluster.
Domain	Type in the name of the cluster domain.
Role	Valid options are: Cluster (Master or Slave is decided by the system), Slave only (role of the DLSAM is always Slave), and Individual (not in a cluster).
Voting Key	Type in 0 or a positive integer as the priority to be Master. 0 means to let system decides Master and Slaves. If positive integer is typed in, the smaller the number is, the higher priority for the DSLAM to be a master in a cluster. But if there's already a Master in a cluster, a new added DSLAM cannot try to be the Master by entering a smaller voting key number; the Master cannot be changed in this way.
IP	Type in the cluster IP address. Users can connect to and manage the cluster via the cluster IP address through in-band connection.
Netmask	Type in the cluster's subnet mask.
Gateway	Type in the cluster's gateway IP address.
Local	Click on this radio button and click on Apply to control the DSLAM you're now directly connected (it will be the Master DSLAM if you're connecting to the cluster via the cluster IP address).
ID	This field shows Cluster ID, which indicates cluster ordering.
Modify	Click on this button to submit the modification.
Query	Click on this button to query current status.
Apply	Once you have selected an entry (NE) in the cluster information table, click on this button to apply your selection.

To control a member in the cluster:

Select a Cluster member in the Cluster Information table and click on Apply. When switching to that NE successfully, you can see the name of that NE displayed on the left top of the page. You are controlling that NE now. If you click on the **Local** radio button and click on Apply, you'll switch back to the NE you're directly connected to.



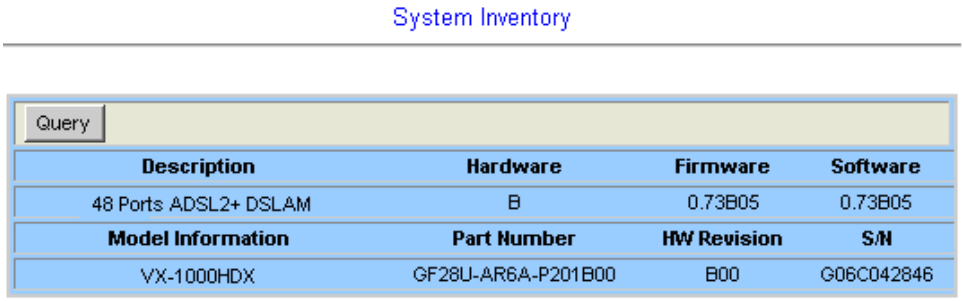
Every time you modify the setting (for example, changing the Role) of any cluster member, the cluster will be reconstructed (cluster state Discovering → Voting → Master or Slave).

If you modify the Role to "Individual", Cluster State will show 'IDLE'. The DSLAM is not in a cluster now.

If you are directly connecting to a Slave in the cluster (connecting via its in-band/out-band IP address), you cannot switch to any other member in the cluster. When you select other member in the table and click on Apply, an error message is displayed on screen.

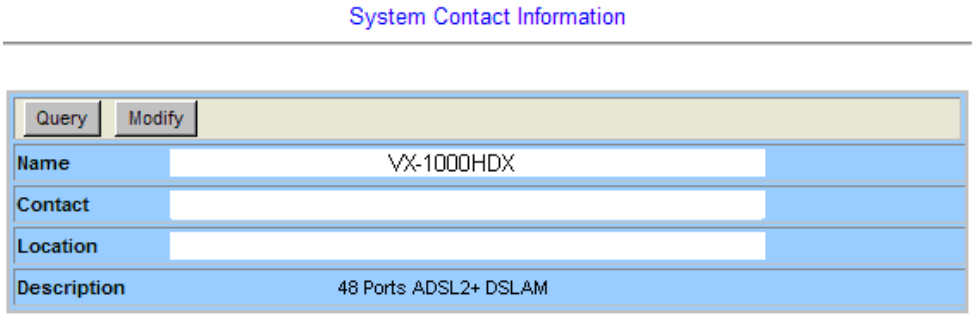
4.1.7 System Inventory

This option allows you to retrieve the system inventory including Description of the System, HW/FW/SW Version, Model Information, Part Number, Hardware Revision, and Serial Number. From the *System* menu, click on *System Inventory*. Click on the **Query** button. The following page is displayed:



4.1.8 System Contact Info

This option allows you to specify the system name, system contact, and system location. From the *System* menu, click on *System Contact Info*. The following page is displayed:



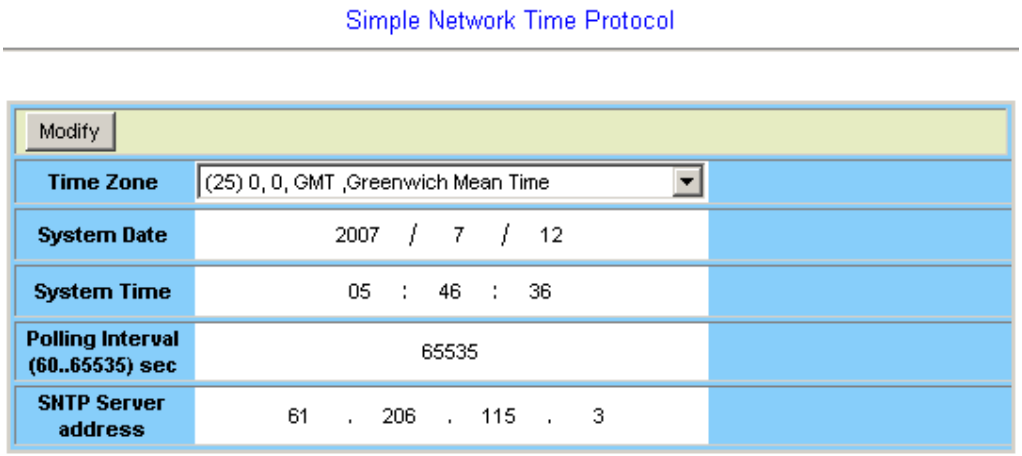
Type in the value you desire, and then click on **Modify** to apply the setting. Click on **Query** to verify if the value is changed.

System Contact Info Setup

Label	Description
Name	Type in the system name (1 ~ 32 characters in length).
Contact	Type in the system contact (0 ~ 63 characters in length).
Location	Type in the system location (0 ~ 63 characters in length).
Description	Description of the system (Read-only).

4.1.9 SNTP

This option allows you to setup the Simple Network Time Protocol (SNTP). From the *System* menu, click on *SNTP*. The following page is displayed.



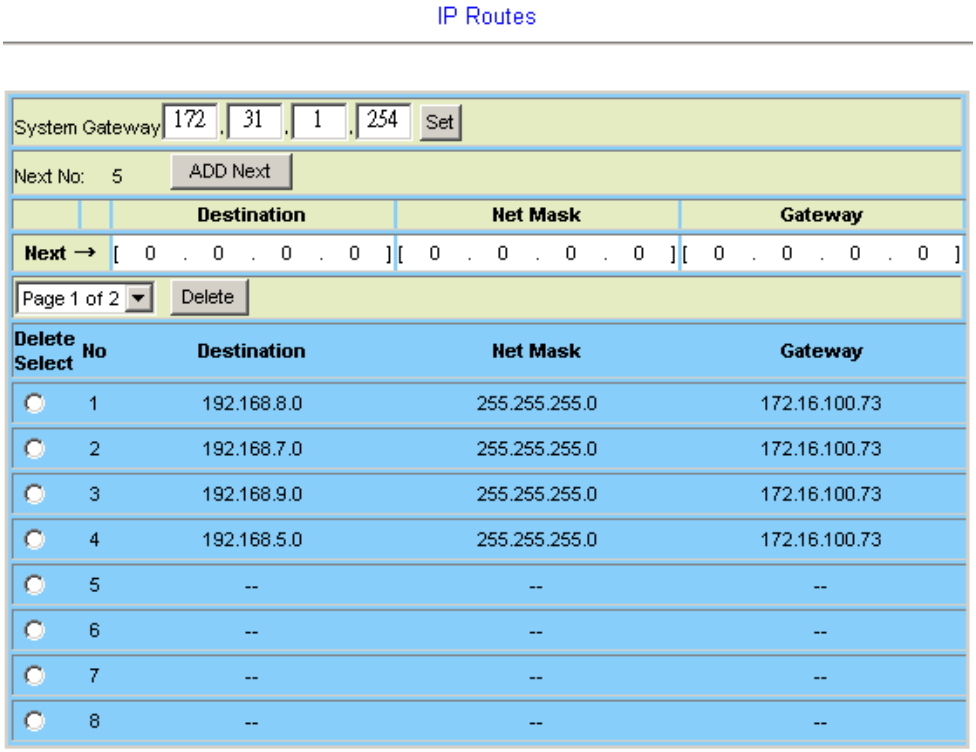
SNTP Setup

Label	Description
Time Zone	Sets the local time zone by selecting in the Time Zone drop-down list. Sixty-five of the world's time zones are presented (including those using standard time and summer/daylight savings time).
System Date	Sets system date (yyyy/mm/dd).
System Time	Sets system time (hh:mm:ss).
Polling Interval	Sets the polling interval (in seconds) that SNTP client will sync with a designated SNTP server.
SNTP Server address	Sets the dedicated unicast server IP address for which the SNTP client can synchronize its time.
Modify	Click on this button to submit the modification.

4.1.10 IP Routes

This option allows you to configure the IP route table for the in-band and out-band management traffic. From the *System* menu, click on *IP Routes*. The following page is displayed:

Click on the drop-down list to select the page to be displayed first.

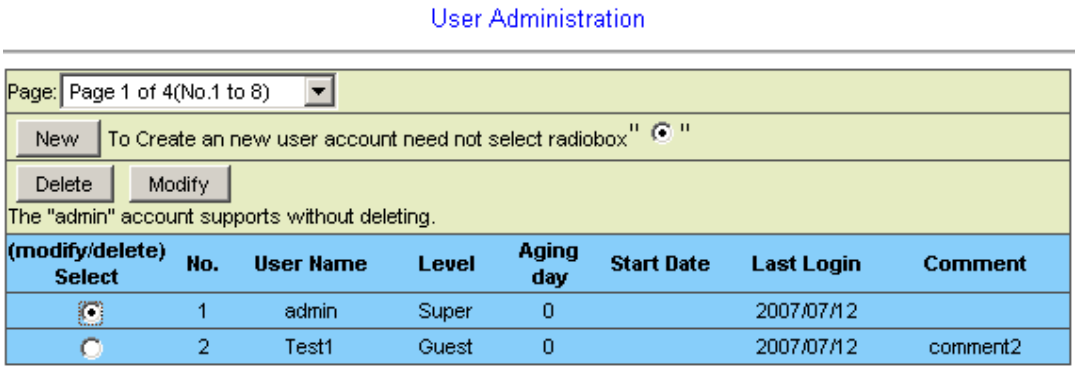


IP Route Setup

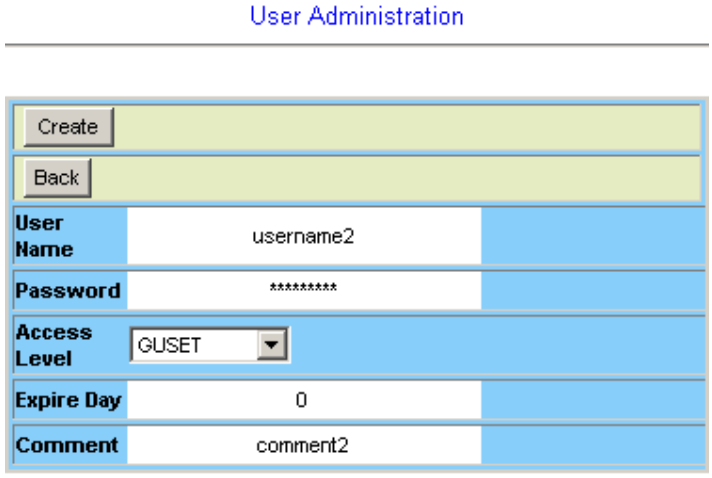
Label	Description
System Gateway	This field shows current system default gateway. You can modify the gateway address by typing in new value and then click on **Set**. If the DSLAM is a Slave in a cluster, this field shows the in-band IP address of the Master; if the DSLAM is a Master in a cluster, this field shows the IP address of the Cluster gateway.
ADD Next	Click on this button to add a new IP route.
Destination	Type in the destination IP address for the new IP route.
Net Mask	Type in the subnet mask for the new IP route.
Gateway	Type in the IP address of the gateway for the new IP route.
Delete Select	Click on the radio button to select a route and then click on **Delete** to remove this route from the table.

4.1.11 User Administration

This option allows you to administer accounts for users who access the DSLAM. From the *System* menu, click on *User Administration*. Click on *Select:* drop-down list and select a page to display. The following page is displayed:



User Administration

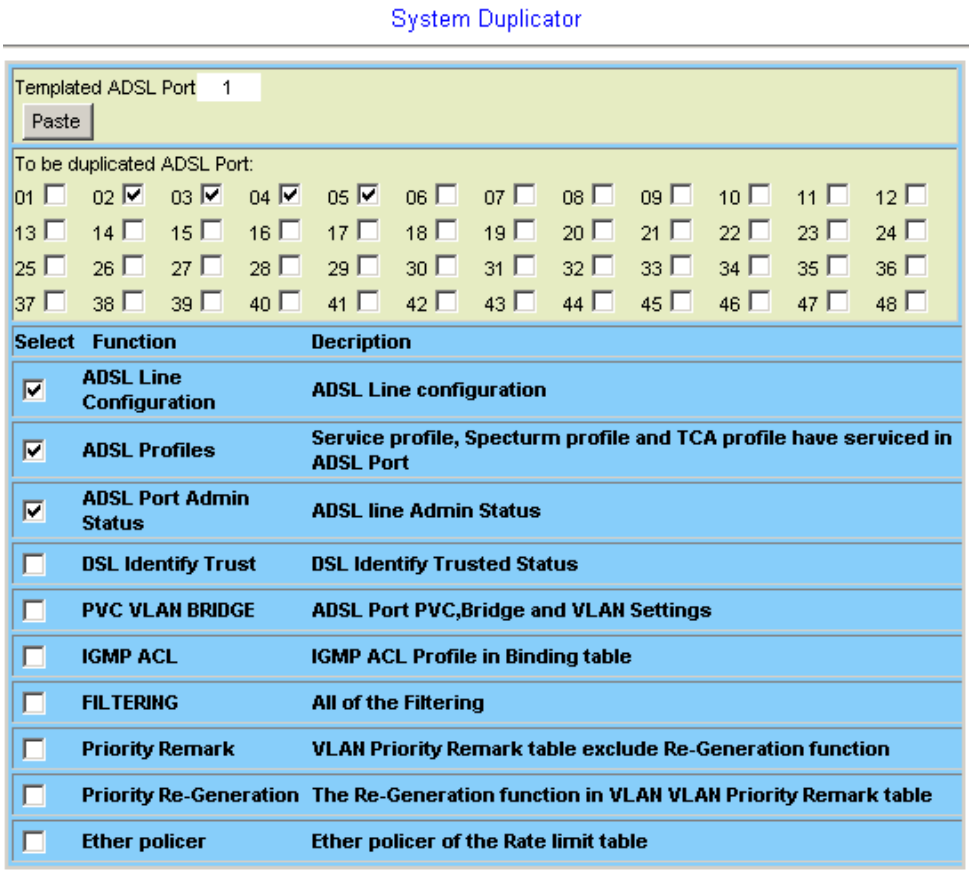
Label	Description
Page	Click on the drop-down list and select the page to be displayed.
New	Click on this button to create a new user. You will enter the following page:  Once you have typed in all the information for the new user, click on the **Create** button.
Delete / Modify	Click on the radio button on the leftmost column of the user table to select the user you want to delete / modify. Then click on **Delete / Modify** button. Note that the default **admin** user cannot be deleted.
User Name	Shows the name of the user (up to 32 characters).
Level	The available access levels include: **SUPERUSER**, **ENGINEER**, and **GUEST**.
Aging day	Set password expiration days (0 for no expiration days)
Start Date	Shows the day when the account was first created.
Last Login	Shows the day when a user last login.
Comment	Description about the user account (up to 31 characters).

When a new account is added: (for example, **Test1** is added)

When user **Test1** intends to login for the first time, he will be asked to change his password (see the figure below) and then login with the new password.

4.1.12 Duplicator

This option allows you to duplicate all/partial the configurations of one selected line port (as a template) to other ports (as many as you want). From the *System* menu, click on *Duplicator*. The following page is displayed. Select the types of configurations (ADSL line configuration, ADSL profiles, or…) you want to duplicate first. Then specify the port number as the template (the source port to be copied), and select the target ports to which the template is going to be copied. At last click on **Paste** to apply.



***Note*:**

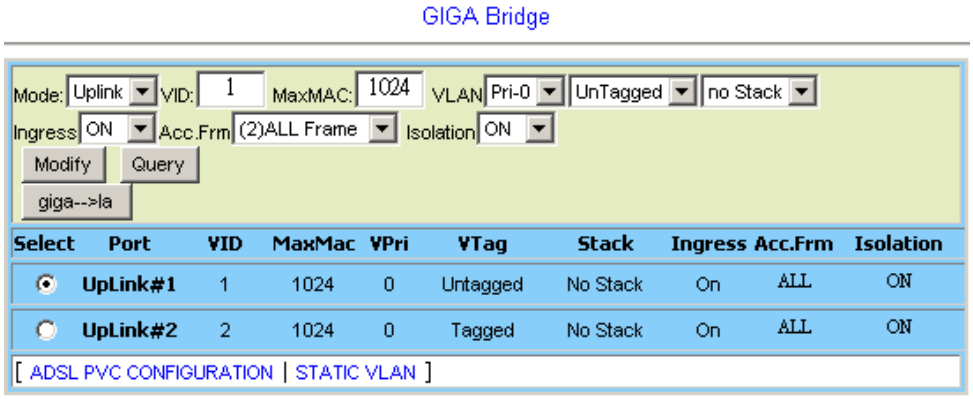
Except the top three functions, every function must be selected with the “PVC VLAN Bridge” function selected, or the configuration cannot be duplicated to other ports.

4.2 Bridge

4.2.1 Interface Setup

4.2.1.1 GIGA Bridge

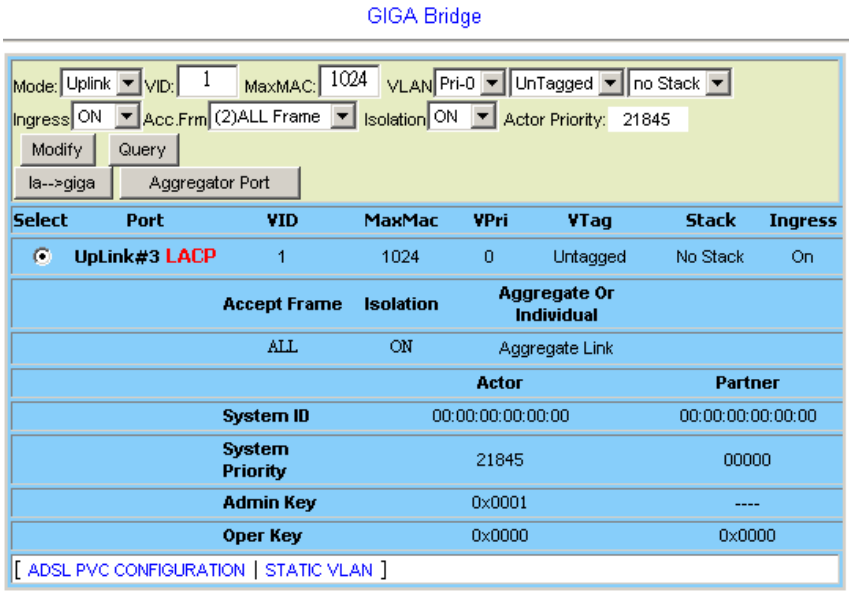
This option allows you to setup the GBE (trunk) bridge interfaces. From the *Bridge* menu, click on *Interface Setup* and then *GIGA Bridge*. The following page is displayed:



GIGA (Trunk) Bridge Setup

Label	Description
Mode	Click on the drop-down list and specify the trunk port to be an Uplink or User (especially for system stacking).
VID	Type in the default port VLAN ID. Valid value is 1 ~ 4094.
Max MAC	Type in the maximum number of MAC addresses that can be learned by the giga bridge port (1 ~ 4096).
VLAN	VLAN setting for the traffic. Includes three drop-down lists: **Pri-0 ~ 7**: Set the default VLAN priority level. **UnTagged/Tagged**: Select to untag / tag the outgoing (upstream direction for trunk bridge ports) packets. If UnTagged is selected, a double-tagged packet will leave single-tagged (the outer most VLAN tag is removed) and a single-tagged packet will leave untagged. **no Stack/Stack**: Disable/Enable N:1 VLAN stacking (our system adds the default VLAN tag to all the incoming frames through this port). *Note:* When an untagged frame enters the VX-1000HDX, it is assigned the default PVID of the ingress (incoming) bridge port and become a single-tagged frame no matter VLAN stacking is enabled or not.
Ingress	Set Ingress ON: check if the VID of the incoming frame is in the member set. If not in the member set, block the frame. Set Ingress OFF: Ingress filter disabled.
Acc.Frm	Click on the drop-down list and select to accept ALL Frame, only VLAN tagged frame, or only Untagged frame.
Isol	ON/OFF: to enable/disable isolation. When port isolation is enabled, packets received from a trunk port (when both the trunk interfaces are configured as up-link) cannot be forwarded to the other trunk port even for broadcasting.
Modify	To modify the configuration of a giga port: 1. Click on the radio button to select trunk port 1 or port 2 2. Change the parameter values 3. Click on Modify button to apply new values
Query	Click on this button to query current status.
giga-->la	Click on this button to enable LACP (Link Aggregation Control Protocol) function. The LACP is part of IEEE 802.3ad that allows bundling trunk ports together to form a single logical channel. This feature can provide load sharing and failover when link status fails on a port.

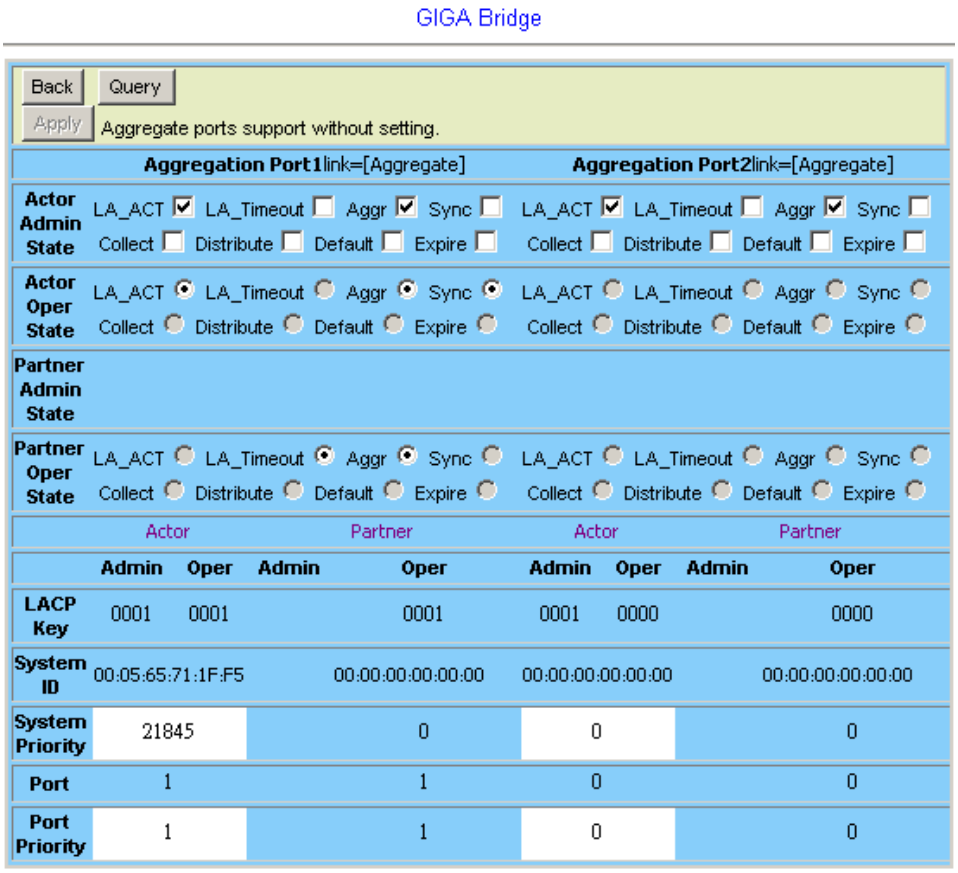
When LACP mode is enabled, the following page is displayed:



GIGA Bridge LACP Setup

Label	Description
Mode	Click on this drop-down list and specify the trunk port to be an Uplink or User.
VID	Type in the VLAN ID (1 ~ 4094).
Max MAC	Type in the maximum number of MAC addresses that can be learned by the bridge port.
VLAN	VLAN setting for the egress traffic. Includes three drop-down lists: Pri-0 ~ 7: Set the VLAN priority Level. UnTagged/Tagged: Select to untag / tag the frame no Stack/Stack:: Disable/Enable stacking.
Ingress	Set Ingress ON: check if the VID of the incoming frame is in the member set. If not in the member set, block the frame. Set Ingress OFF: Ingress filter disabled.
AccFrm	Click on the drop-down list and select to accept ALL Frame, only VLAN tagged frame, or only Untagged frame.
Isol	ON/OFF: to enable/disable isolation. When port isolation is enabled, packets received from a trunk port (when both the trunk interfaces are configured as up-link) cannot be forwarded to the other trunk port even for broadcasting.
Actor Priority	Type in the System Priority of the Actor. System Priority is a value indicating the priority value associated with the Actor's System ID. Valid value: 0 ~ 65535.
Modify	Click on this button to submit the modification.
Query	Click on this button to query current status.
la-->giga	Click on this button to leave LACP and go to normal gigabit mode.
Aggregator Port	Click on this button to enter the Aggregator Port setting page.
Aggregate Or Individual	Indicating whether the Aggregation Port is able to Aggregate or is only able to operate as an Individual link.
Actor	The local entity in a Link Aggregation Control Protocol exchange.
Partner	The remote entity in a Link Aggregation Control Protocol exchange.
System ID	A 6-octet MAC address which is a unique identifier for the System that contains this Aggregator.
System Priority	System Priority is a value indicating the priority value associated with the Actor's/Partner's System ID.
Admin Key	The current administrative value of the Key for the Aggregator. The administrative Key value may differ from the operational Key value. The meaning of particular Key values is of local significance.
Oper Key	The current operational value of the Key for the Aggregator. The administrative Key value may differ from the operational Key value. The meaning of particular Key values is of local significance.

Click on **Aggregator Port** in the previous figure, the following page is displayed:



GIGA Bridge Aggregator Port Setup

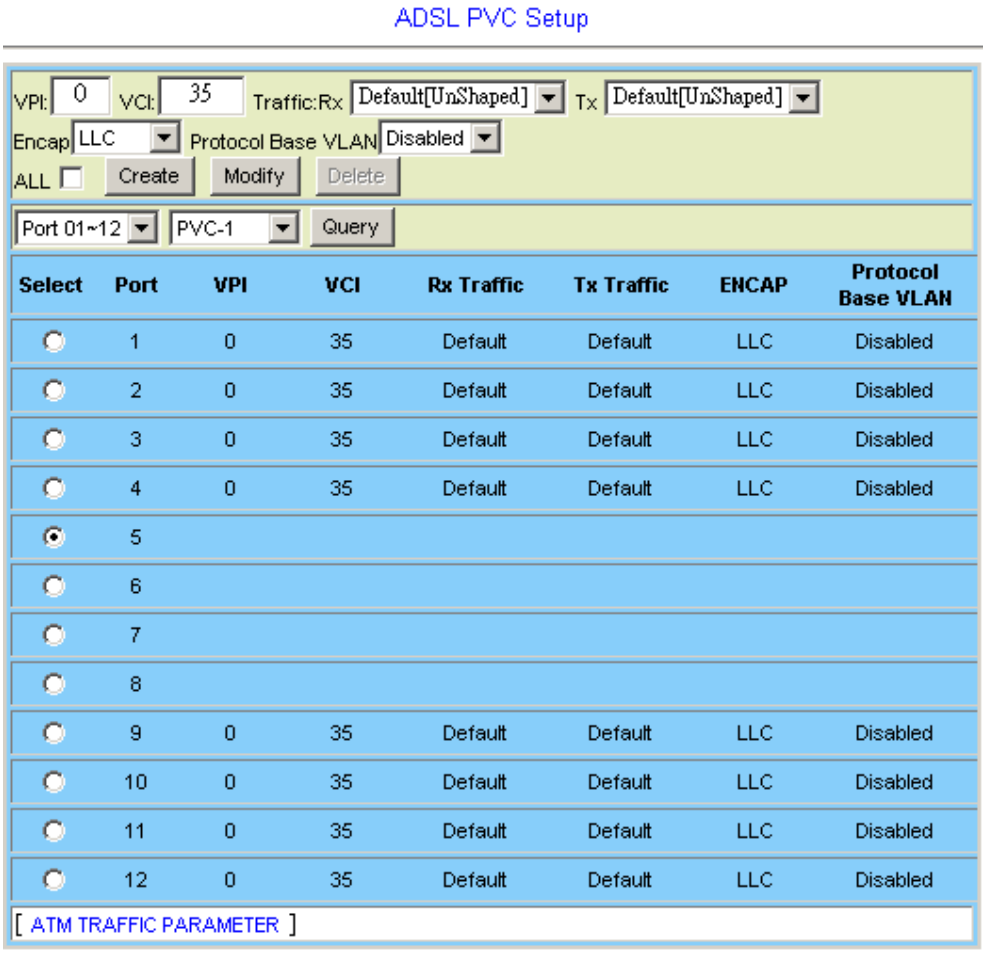
* The following labels may appear in the Actor's or Partner's Administrative/Operational state.

Label	Description
LA_ACT	If the operational state shows LA_ACT ON, this indicates the Activity control is Active LACP; otherwise, the Activity control is Passive LACP.
LA_Timeout	LA_Timeout means the Timeout control value with regard to this link. If the operational state shows LA_Timeout ON, this indicates Short Timeout, otherwise, Long Timeout.
Aggr	If the operational state shows Aggr ON, this indicates that the System considers this link to be Aggregatable; i.e., a potential candidate for aggregation. If not, the link is considered to be Individual; i.e., this link can be operated only as an individual link.

Sync	If the operational state shows Sync ON, the system considers this link to be IN_SYNC; I.e., it has been allocated to the correct Link Aggregation Group, the group has been associated with a compatible Aggregator, and the identity of the Link Aggregation Group is consistent with the System ID and operational Key information transmitted. If Sync OFF, then this link is currently OUT_OF_SYNC; i.e., it is not in the right Aggregation.
Collect	If the operational state shows Collect ON, this means collection of incoming frames on this link is definitely enabled; i.e., collection is currently enabled and is not expected to be disabled in the absence of administrative changes or changes in received protocol information.
Distribute	If the operational state shows Distribute OFF, this means distribution of outgoing frames on this link is definitely disabled; i.e., distribution is currently disabled and is not expected to be enabled in the absence of administrative changes or changes in received protocol information.
Default	If the operational state shows Default ON, this indicates that the Actor's Receive machine is using Defaulted operational Partner information, administratively configured for the Partner. If Default OFF, the operational Partner information in use has been received in a LACPDU.
Expire	If the operational state shows Expire ON, this indicates that the Actor's Receive machine is in the EXPIRED state; if Expire OFF, this indicates that the Actor's Receive machine is not in the EXPIRED state.
LACP Key	The current administrative / operational value of the Key for the Aggregation Port. This is a value between 0000 ~ FFFF. The meaning of particular Key values is of local significance.
System ID	A 6-octet MAC address value that defines the value of the System ID for the System that contains this Aggregation Port.
System Priority	A value that indicates the priority value associated with the Actor's / Partner's System ID. Value range is 0 ~ 65535.
Port	The port number associated with this link assigned to the port by the Actor/Partner. Port number range is 0 ~ 65535.
Port Priority	The current value of the port priority for the protocol Actor / Partner. Value range is 0 ~ 65535.

4.2.1.2 ADSL PVC

This option allows you to setup the ADSL PVC. From the *Bridge* menu, click on *Interface Setup* and then *ADSL PVC*. The following page is displayed:



You shall click on the drop-down lists to select port range and PVC first. Then the data of these PVCs (bridge ports) you selected will be displayed. Click on the radio button to select the PVC you want to create, modify, or delete.

ADSL PVC Setup

Label	Description
VPI	Type in the VPI value: 0 ~ 255. Default value is 0.
VCI	Type in the VCI value: 21, 32 ~ 65535. Default value is 35.
Traffic	Click on the drop-down list and select a traffic type for transmit and receive direction respectively. Available options are created in the ATM Traffic Descriptor page.
Encap	Select AAL5 Encapsulation Type: VCMUX, LLC, or AUTO (for PVC#1 ~ PVC#4 only)*.
Protocol Based VLAN	Select in the drop-down list to enable or disable protocol based VLAN function. When protocol based VLAN is enabled, the bridge port will work according to the protocol based VLAN table.
All	Select the check box to copy specified circuit to all remainder circuits in current page.

Create	Click on the radio button to select a PVC (bridge port) that has not been created. Set the parameter values and then click on **Create** to create a PVC.
Modify	Click on the radio button to select the PVC (bridge port) you want to modify. Change the parameter values and then click on **Modify**.
Delete	Click on the radio button to select the PVC (bridge port) you want to delete. Then click on **Delete** to remove the PVC.
Query	Click on this button to get the most recent data.

*The VX-1000HDX supports auto-detection of the ATM AAL5 encapsulation method, LLC or VC-Mux. Meanwhile, the VX-1000HDX is also able to automatically sense the following protocol encapsulations: PPPoE over ATM (per RFC 2684), IPoE over ATM bridge mode, and PPP over ATM. IPoA works on individual PVC.

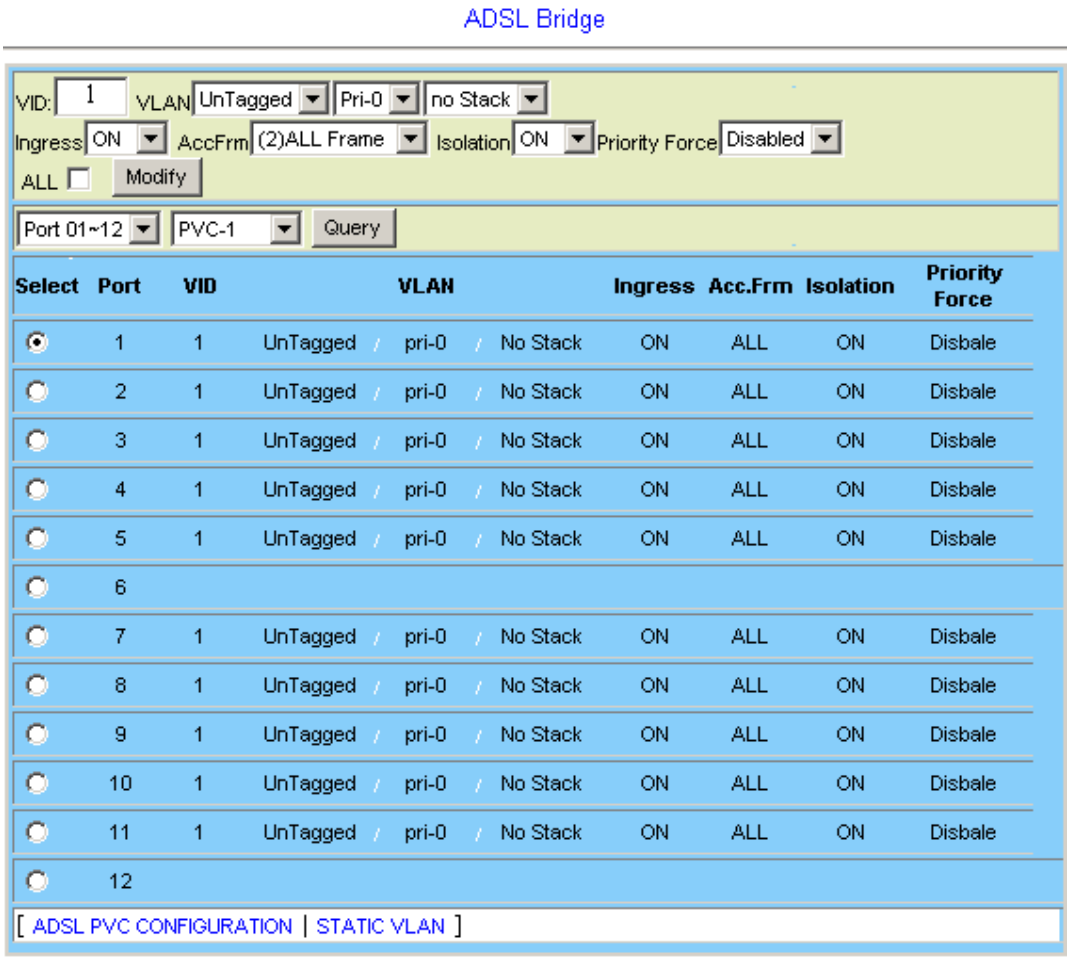
However, there are limitations on auto-detection of encapsulations:

1. LLC/VC-Mux automatically detection is only applicable to PVC#1 ~ PVC#4 of each ADSL port. PVC#5 ~ PVC#8 must be assigned the ATM AAL5 encapsulation method manually.
2. PPPoA works only for PVC#1 ~ PVC#4 and the LLC/VC-Mux automatically detection must be enabled.

Refer to IPoA configuration.

4.2.1.3 ADSL Bridge

This option allows you to setup the ADSL bridge interface. From the *Bridge* menu, click on *Interface Setup* and then *ADSL Bridge*. The following page is displayed:



You shall click on the drop-down lists to select port range and PVC first. Then the data of these PVCs (bridge ports) you selected will be displayed. Click on the radio button to select the bridge port you want to modify.

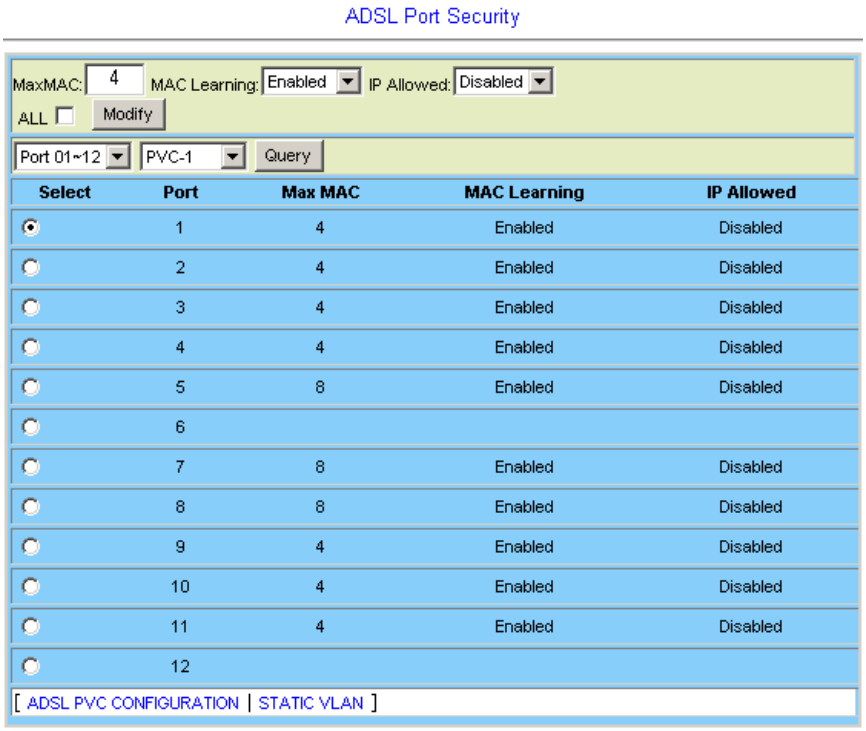
ADSL Bridge Setup

Label	Description
VID	Type in the default port VLAN ID. Valid value is 1 ~ 4094.
VLAN	VLAN setting for the egress traffic. Includes three drop-down lists: **UnTagged/Tagged**: select untagging/tagging the outgoing frames (downstream direction for line bridge port). If UnTagged is selected, a double-tagged packet will leave single-tagged (the outer most VLAN tag is removed) and a single-tagged packet will leave untagged. **Pri-0 ~ 7**: set the default VLAN priority level. **no Stack/Stack/TLS**: disable N:1 VLAN stacking / enable N:1 VLAN stacking (our system adds the default VLAN tag to all the incoming frames through this port) / enable TLS (transparent LAN service) so that this bridge port becomes VLAN transparent (refer to DSL Forum, TR-101). A pre-configured S-Tag is used to encapsulate TLS traffic going through this port. That is, an S-Tag

	(PVID here) will be added to all the upstream frames received on this port, and the C-Tags will be the original tags of these frames (no C-Tag for untagged incoming frames). On the other hand, the S-tag will be removed from all the downstream (outgoing) frames. *Note:* When an untagged frame enters the VX-1000HDX, it is assigned the default PVID of the ingress (incoming) bridge port and become a single-tagged frame no matter VLAN stacking is enabled or not.
Ingress	Set Ingress ON: check if the VID of the incoming frame is in the member set. If not in the member set, block the frame. Set Ingress OFF: Ingress filter disabled.
AccFrm	Click on the drop-down list and select to accept ALL Frame, only VLAN tagged frame, or only Untagged frame.
Isolation	ON/OFF: to enable/disable isolation. When port isolation is enabled, packets received from a line bridge port (including trunk interface configured as user-link) cannot be forwarded to any other line bridge port even for broadcasting.
Priority Force	Click on the drop-down list and select the priority-forcing mode. Options are: **Disabled**: Reserve the original priority of all packets. **Ingress**: Force applying the default VLAN priority value to all the packets received on this bridge port (so this rule will work on all the member-set of this bridge port). **Egress**: Force the priority value of all packets sent out from this bridge port's default VLAN to be the default VLAN priority (so this rule only works on default VLAN of this bridge port). **Both**: Combine the rules of Ingress and Egress.
All	Select the check box to copy specified circuit to all remainder circuits in current page.
Modify	Click on the radio button to select the bridge port you want to modify. Change the parameter values and then click on **Modify**.
Query	Click on this button to get the most recent data.

4.2.1.4 ADSL Port Security

This option allows you to setup the ADSL port security. From the *Bridge* menu, click on *Interface Setup* and then *ADSL Port Security*. The following page is displayed:



You shall click on the drop-down lists to select port range and PVC first. Then the data of these PVCs (bridge ports) you selected will be displayed. Click on the radio button to select the bridge port you want to modify.

ADSL Port Security Setup

Label	Description
Max MAC	Type in the maximum number of MAC addresses that can be learned by the ADSL bridge port (1 ~ 128).
MAC Learning	Select to enable/disable MAC learning ability. Sometimes you can disable MAC learning on specified bridge port. This function is for 1:1 VLAN translation scenario.
IP Allowed	Select to enable/disable IP Allowed function. When you enable IP Allowed function on a bridge port, this bridge port will work according to the Static Allowed IP table. So you need to define the source IP addresses that bind to this bridge port. Then the IP packets that contain these source IP addresses can pass through this bridge port; otherwise the packets will be blocked.
All	Select the check box to copy specified circuit to all remainder circuits in current page.
Modify	Click on the radio button to select the bridge port you want to modify. Change the parameter values and then click on **Modify**.
Query	Click on this button to get the most recent data.

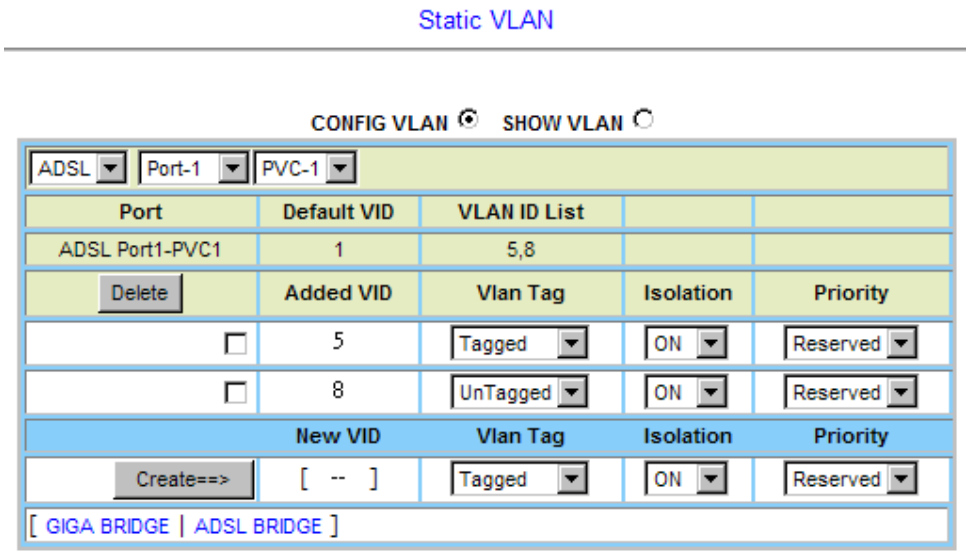
4.2.2 VLAN Configuration

4.2.2.1 Static VLAN

This option allows you to configure the static VLAN table. From the *Bridge* menu, click on *VLAN Configuration* and then *Static VLAN*. The following page is displayed. Click on the radio button to select *CONFIG VLAN* to configure static VLAN for the bridge ports or *SHOW VLAN* to display the VLAN table.

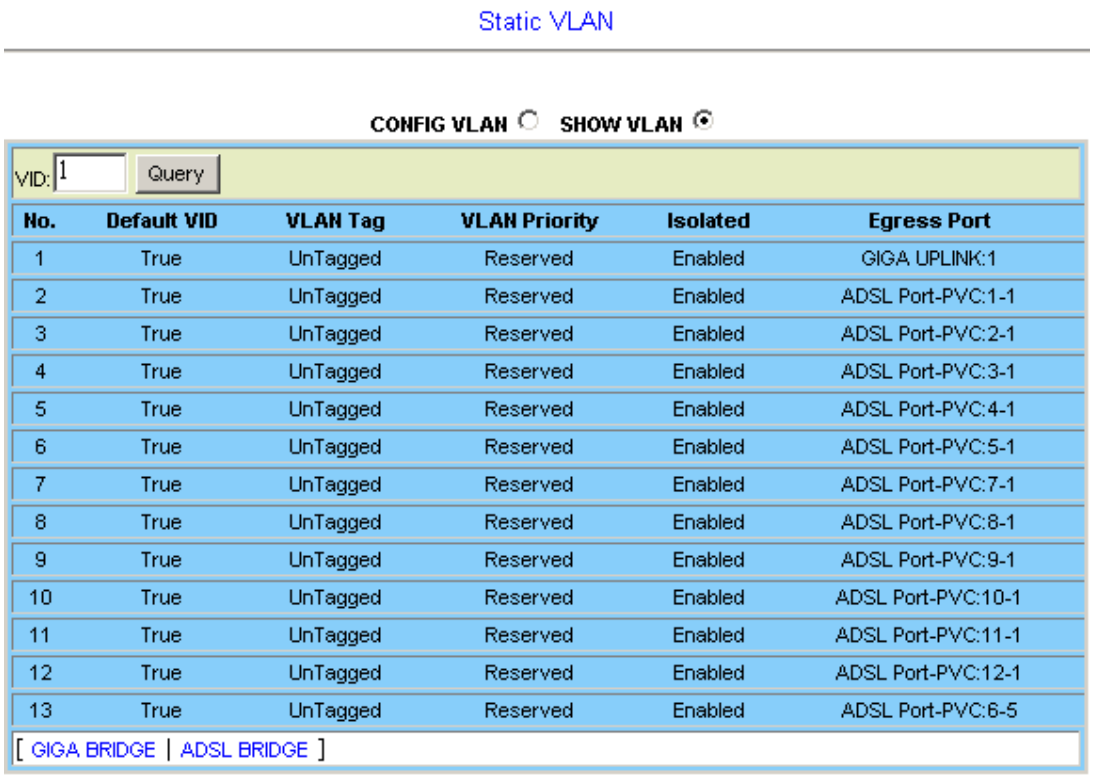
CONFIG VLAN

Click on the drop-down list to select ADSL or GIGA port, and then select a port and PVC if ADSL is selected. Once you have selected the bridge interface, its current static VLAN setting is displayed. To add a new VLAN member, type in VID for the **New VID** field and then select Tagged/UnTagged for **VLAN Tag**, ON/OFF for **Isolation**, and VLAN priority level (specify a number or reserve the original value) for **Priority**. At last click on **Create==>** button. To delete a VLAN, select the checkboxes of the entries you want to delete and then click on **Delete** button.



SHOW VLAN

In the following page, type in the VID and then click on Query. All the bridge ports belonging to the VLAN and the configuration data of these ports will be displayed in the table.

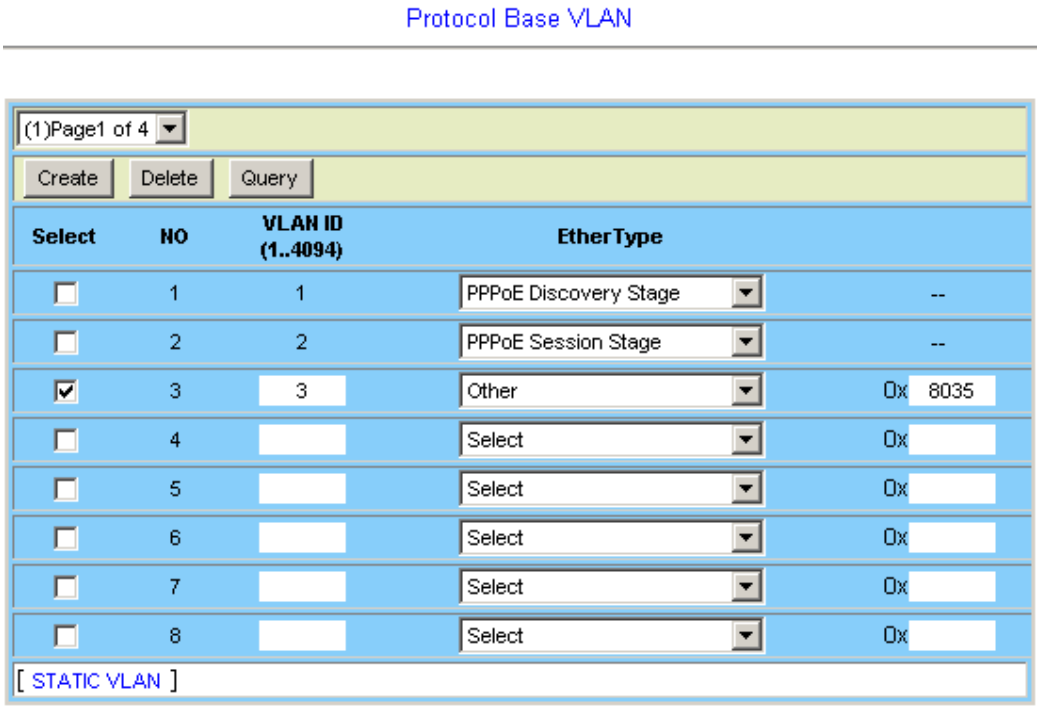


No.	Default VID	VLAN Tag	VLAN Priority	Isolated	Egress Port
1	True	UnTagged	Reserved	Enabled	GIGA UPLINK:1
2	True	UnTagged	Reserved	Enabled	ADSL Port-PVC:1-1
3	True	UnTagged	Reserved	Enabled	ADSL Port-PVC:2-1
4	True	UnTagged	Reserved	Enabled	ADSL Port-PVC:3-1
5	True	UnTagged	Reserved	Enabled	ADSL Port-PVC:4-1
6	True	UnTagged	Reserved	Enabled	ADSL Port-PVC:5-1
7	True	UnTagged	Reserved	Enabled	ADSL Port-PVC:7-1
8	True	UnTagged	Reserved	Enabled	ADSL Port-PVC:8-1
9	True	UnTagged	Reserved	Enabled	ADSL Port-PVC:9-1
10	True	UnTagged	Reserved	Enabled	ADSL Port-PVC:10-1
11	True	UnTagged	Reserved	Enabled	ADSL Port-PVC:11-1
12	True	UnTagged	Reserved	Enabled	ADSL Port-PVC:12-1
13	True	UnTagged	Reserved	Enabled	ADSL Port-PVC:6-5

[GIGA BRIDGE | ADSL BRIDGE]

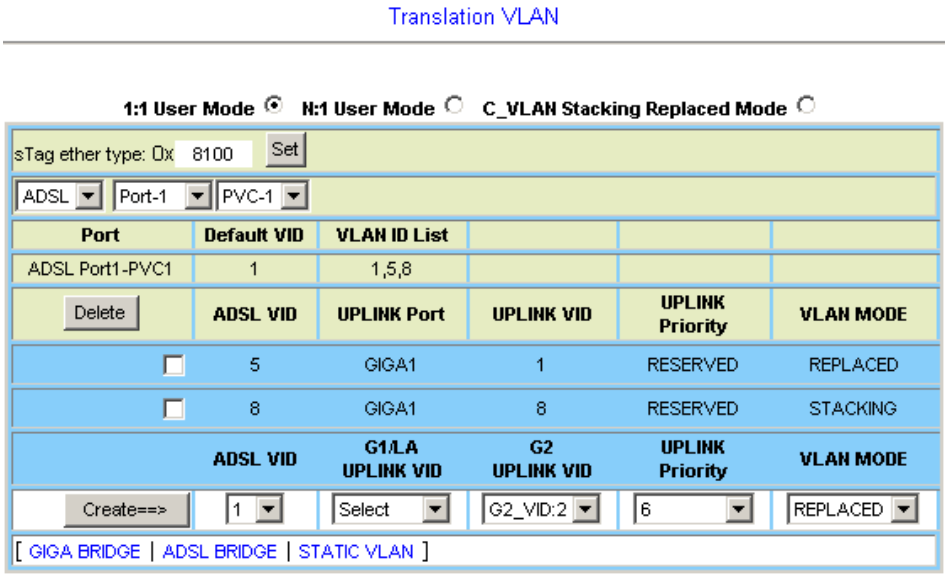
4.2.2.2 Protocol Base VLAN

This option allows you to configure the protocol based VLAN table. From the *Bridge* menu, click on *VLAN Configuration* and then *Protocol Base VLAN*. The following page is displayed. Select the checkboxes of the entries you want to create or delete. To create a new entry, type in the VLAN ID and select the EtherType (protocol). If you select **Other** for EtherType, type the EtherType value in the rightmost field.



4.2.2.3 Translation VLAN

This option allows you to configure the translation VLAN table, which defines some special VLAN working rules such as VLAN stack, VLAN cross-connect, etc. Before you configure the Translation VLAN table for a line bridge port, you shall configure the Static VLAN table for this line bridge port and the GIGA bridge port in advance. Also, you shall disable VLAN stacking feature of this line bridge port in the ADSL bridge interface setup page, otherwise the VLAN translation rule here will not take effect. From the *Bridge* menu, click on *VLAN Configuration* and then *Translation VLAN*. The following page is displayed. Click on the radio button to select translation Mode first.



Actually the VX-1000HDX/MDX provides five translation modes: four for 1:1 VLAN, one for N: 1 VLAN.

1:1 VLAN (including 1:1 User Mode and C_VLAN Stacking Replaced Mode):
If the ADSL user bridge port only has 1:1 VLAN, then MAC learning function of this bridge port can be disabled.

1. Reserved

   In this mode, the system does not make any change on C-Tag. That is the uplink port's S-Tag is actually the C-Tag. The system provides a tunnel for the user port and uplink port. And one VLAN ID can only make one tunnel.

2. Replaced

   In this mode, the system will change the user port's C-Tag to the Uplink port's S-Tag. And the mapping is one to one, that is, one user port's C-Tag (one VID) can only translate to one uplink port's S-Tag (one VID), and vice versa. For example, for ADSL Port1-PVC1, if ADSL VID 5 translates to GIGA1 VID 1, then you cannot make ADSL VID 5 translate to another GIGA VID. You also cannot make another ADSL VID translate to GIGA VID1.
   Upstream:
   C-Tag→(User port)-----(Uplink port)→S-Tag

   Downstream:
   S-Tag→(Uplink port)-----(User port)→C-Tag

3. Stacking

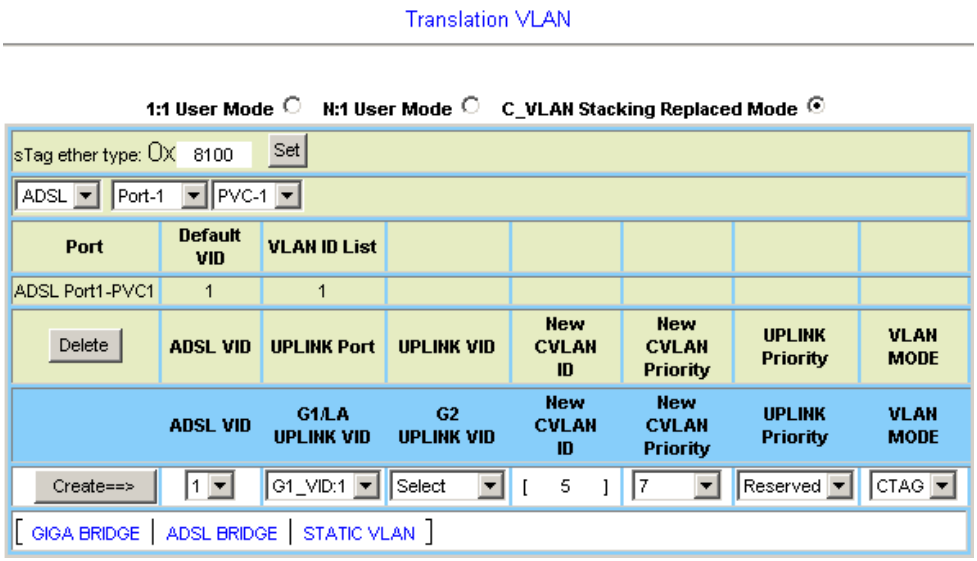
   In this mode, the system will add S-TAG before user port's C-TAG. Note that the mapping from C-Tag to S-Tag+C-Tag is still one to one. So a user port's C-Tag can't be used for another translation rule, as well as an uplink port's S-Tag+C-Tag.
   Upstream:
   C-Tag→(User port)-------(Uplink port)→S-Tag+C-Tag

   Downstream:
   S-Tag+C-Tag→(Uplink port)--------(User port)→C-Tag

4. Stacking and Replaced

   In this mode, the system will replace the user port's C-Tag to C'-Tag and add S-Tag before C'-Tag. Note that the mapping from C-Tag to S-Tag+C'-Tag is still one to one. So a user port's C-Tag can't be used for another translation rule, as well as an uplink port's S-Tag+C'-Tag.
   Upstream:
   C-Tag→(User port)-------(Uplink port)→S-Tag+C'-Tag

   Downstream:
   S-Tag+C'-Tag→(Uplink port)--------(User port)→C-Tag



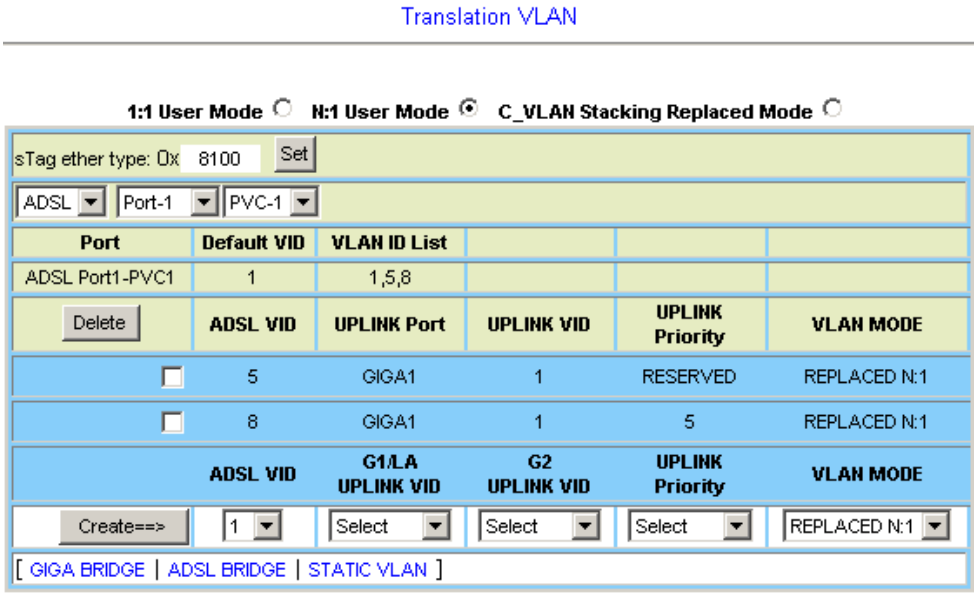
N:1 VLAN (N:1 User Mode):

N:1 can also be called shared VLAN, so in this mode MAC learning function of the bridge ports must not be disabled.

1. Replaced N:1

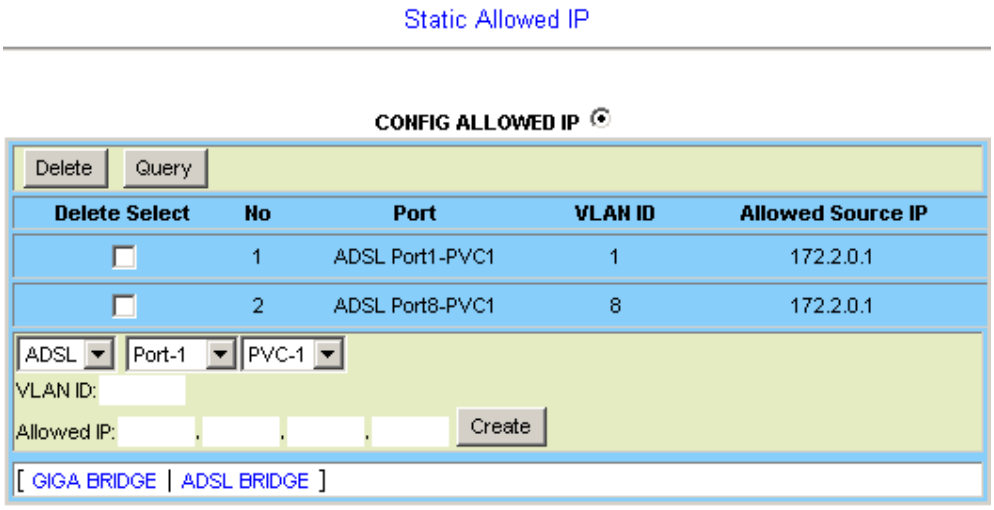
   In this mode, the system will change the user port's C-Tag to the Uplink port's S-Tag. And the mapping is N to 1, so a user port's C-Tag can't be used for another VLAN translation rule. But an uplink port's S-Tag can be used for another N:1 VLAN translation rule.

   So in this mode several bridge ports can have the same VLAN cross-connect rule.



4.2.2.4 Static Allowed IP

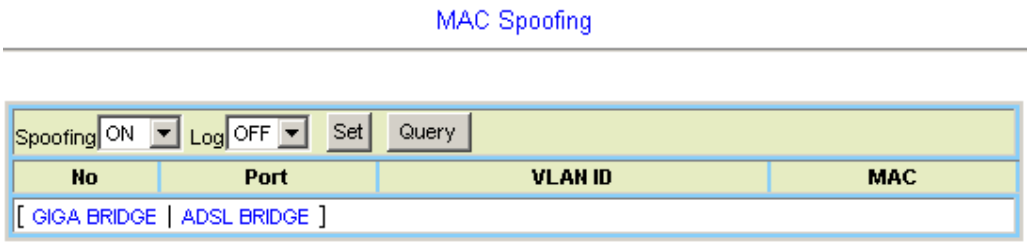
This option allows you to configure the Static Allowed IP table. From the *Bridge* menu, click on *VLAN Configuration* and then *Static Allowed IP*. The following page is displayed. To make bridge port work according to this Static Allowed IP table, the IP allowed function must be enabled.



Click on the drop-down lists to select ADSL port and PVC number, then type in VID and allowed source IP that can pass through the VLAN.

4.2.2.5 MAC Spoofing

This option allows you to enable/disable anti-MAC Spoofing function and MAC-Spoofing detection log function. From the *Bridge* menu, click on *VLAN Configuration* and then *MAC Spoofing*. The following page is displayed.



MAC Spoofing Setup

Label	Description
Spoofing	Click on the drop-down list to select: **OFF**: The system is able to provide service to users with duplicate MAC addresses. **ON**: The system is able to deny service to users with duplicate MAC addresses.
Log	Click on the drop-down list to select: **OFF**: No log of MAC spoofing data when detected. **ON**: The system provides log when duplicated MAC addresses detected.
Set	Click on this button to apply the setting.
Query	Click on this button to get the MAC spoofing information (the Log function must be enabled).

4.2.3 Spanning Tree

Spanning Tree Protocol (STP) can detect and eliminate network loops and provide backup links between bridges or switches. It allows a device to interact with other STP-aware devices to ensure that only one path exists between any two stations on the network.
BPDU: STP-aware devices exchange Bridge Protocol Data Units (BPDUs) periodically. When the bridged LAN topology changes, a new spanning tree is constructed.
Root Bridge: the base of the spanning tree. It is the bridge with the lowest identifier value (Bridge ID, which is a field in the BPDU).
Path Cost: the transmission cost sum of transmitting a frame to the Root Bridge through that path. The transmission cost is assigned according to the speed of the link to which a port is attached. The slower the media is, the higher the cost become - see the following table.

Transmission Cost

Link	Recommended	Recommended Cost
4Mbps	250	100 to 1000
10Mbps	100	50 to 600
16Mbps	62	40 to 400
100Mbps	19	10 to 60
1Gbps	4	3 to 10
10Gbps	2	1 to 5

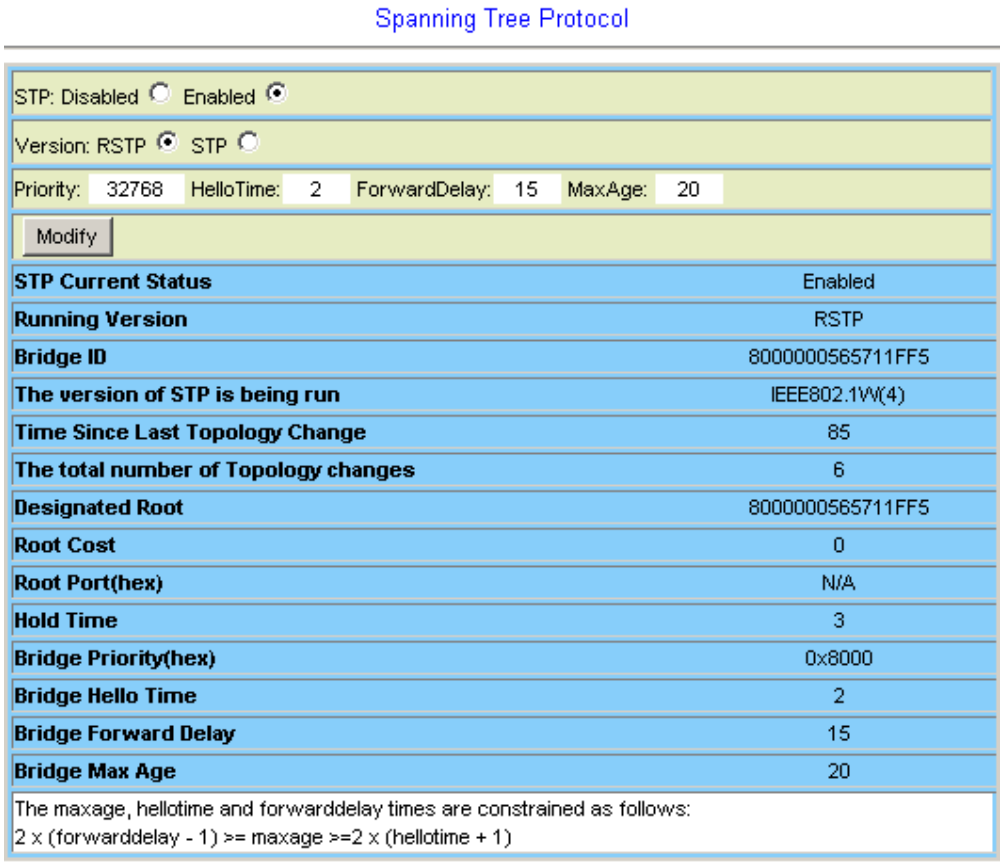
Root Port: On a Non-Root Bridge, the port having the lowest path cost to the Root Bridge.
Designated Port: Each LAN segment has a Designated Port. If one port is determined to have the lowest path cost, it becomes the Designated Port for that segment. If there is more than one port having the same path cost in a segment, the port having the lowest Bridge ID will be selected to be the Designated Port. For a Root Bridge, each port on it is a Designated Port for the connected segment.
After the STP determined the lowest cost-spanning tree, it enables all the root ports and designated ports and disables all other ports that participate in the spanning tree. Network packets are therefore only forwarded between enabled ports, eliminating any possible network loops.
Once a stable network topology has been established, all devices listen for Hello BPDUs transmitted from the Root Bridge. If a device does not get a Hello BPDU after a predefined interval (Max Age), the device assumes that the link to the root bridge is down. This device then will negotiate with other devices to re-establish a valid network topology.
STP assigns five port states (see the following table) to eliminate packet looping. A device port is not allowed to go directly from blocking state to forwarding state so as to eliminate transient loops.

Port States

Port State	Description
Disabled	STP is disabled (default).
Blocking	Only configuration and management BPDUs are received and processed.
Listening	All BPDUs are received and processed.
Learning	All BPDUs are received and processed. Information frames are submitted to the learning process but not forwarded.
Forwarding	All BPDUs are received and processed. All information frames are received and forwarded.

4.2.3.1 Protocol

This page allows you to setup the STP Bridge. From the *Bridge* menu, click on *Spanning Tree* and then *Protocol*. The following page is displayed:



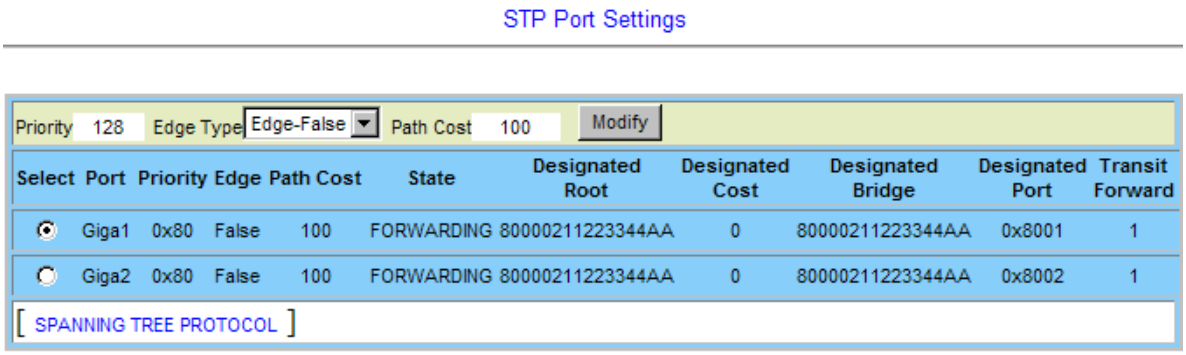
STP Bridge Settings

Label	Description
Disable / Enable	Specify whether or not the system is to implement the spanning tree protocol.
Modify	Once you have modified the parameters, click on this button to submit the modification.
Version	Select RSTP (IEEE 802.1W) or STP (IEEE 802.1D).
Priority	Sets the spanning tree protocol priority. The lower the priority number, the more significant the bridge becomes in protocol terms. Where two bridges have the same priority, their MAC address is compared and the smaller MAC address is treated as the most significant. The priority can be any value between 0 and 61440 in step of 4096. Default value is 32768.
MaxAge	Sets the maximum age of received spanning tree protocol information before it is discarded. This is used when the bridge is or is attempting to become the root bridge. This can be any value (in seconds) between 6 and 40. BUT it is constrained by the hellotime and forwarddelay times.

	Default value is 20.
Hello Time	Sets the time after which the spanning tree process sends notification of topology changes to the root bridge. This is used when the bridge is or is attempting to become the root bridge. This can be any value (in seconds) between 1 and 2. BUT it is constrained by the maximum age and forwarddelay times. Default value is 2.
Forwarding Delay	Sets the time that the bridge spends in listening or learning states when the bridge is or is attempting to become the root bridge. This can be any value (in seconds) between 4 and 30. BUT it is constrained by the maxage and hellotimes. The maxage, hellotime and forwarddelay times are constrained as follows: 2 x (forwarddelay - 1) ≥ maxage maxage ≥ 2 x (hellotime + 1) For example, the default settings are: 2 x (15 - 1) ≥ 20 20 ≥ 2 x (2 + 1)
Current Status	Current system STP setting and status are shown in the Current Status table.

4.2.3.2 Port Setting

This page allows you to setup the STP Port. From the *Bridge* menu, click on *Spanning Tree* and then *Port Settings*. The following page is displayed:



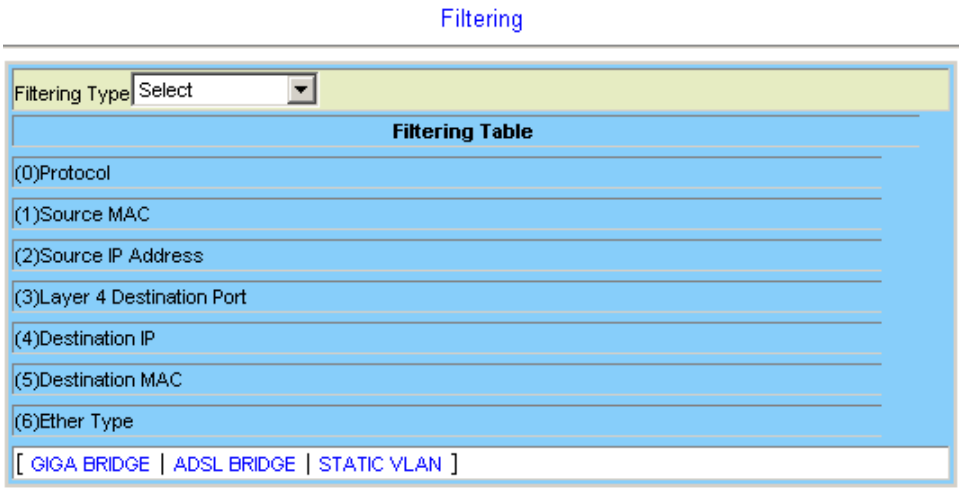
STP Port Settings

Label	Description
Priority	Type in the priority level of the port (0 ~ 240 in step of 16).
Edge Type	Click on this drop-down list and select RSTP type: Edge-True or Edge-False.
Path Cost	Type in the Path Cost through the port (1 ~ 65535 integer number).
Modify	Select the trunk link in the table, type in or select new value for the above fields, and then click on this button to submit the modification.

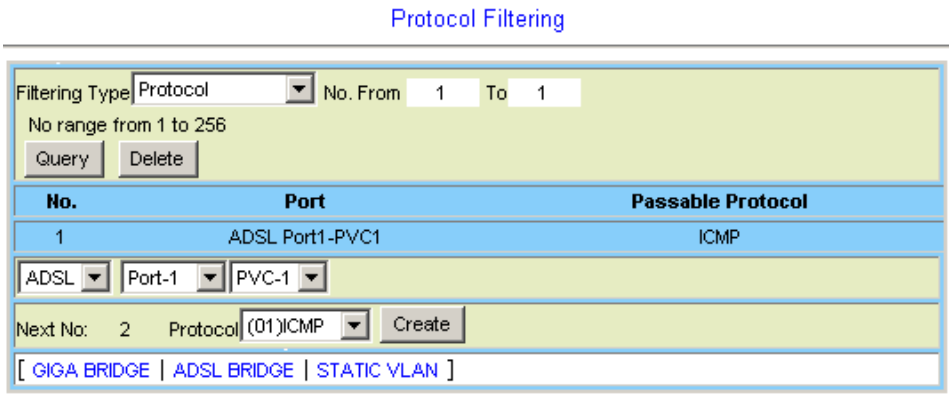
4.2.4 Access Control

4.2.4.1 Filtering

This option allows you to setup the filter rule for the packets. From the *Bridge* menu, click on *Access Control* and then *Filtering*. The following page is displayed. Click on *Filtering Type* drop-down list to select a filtering type first.



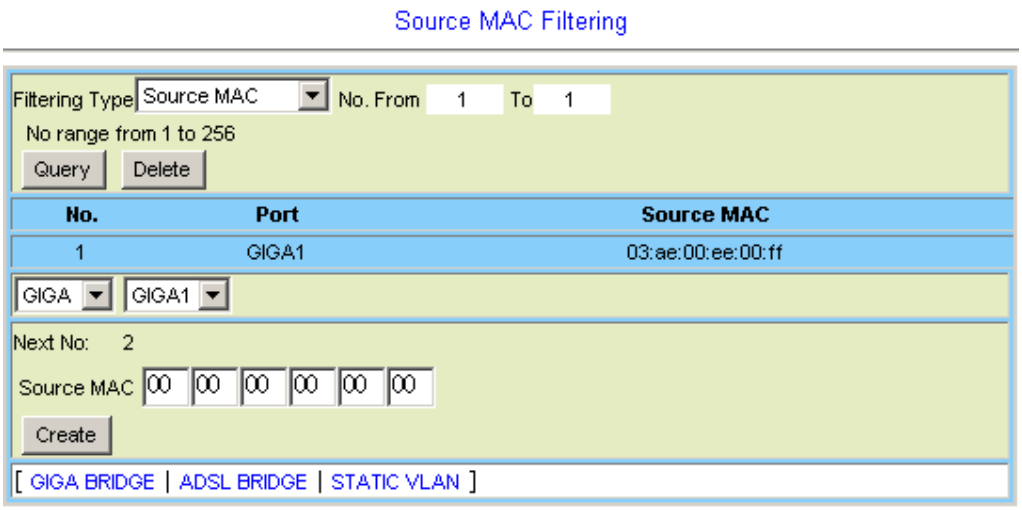
Protocol Filtering



Protocol Filtering Setup

Label	Description
Filtering Type	You can also select the filtering type here.
No. From…To…	Type in the range of serial number in the filter rule table. Valid number value: 1 ~ 256.
Query	Once you have specified the serial number, click on this button to display the filter rules.
Delete	Once you have specified the serial number, click on this button to delete the filter rules in the table.
ADSL Port-1 PVC-1	Click on these drop-down lists to select an ADSL bridge port or GIGA bridge port.
Protocol	Click on this drop-down list and select a protocol to deny: ICMP, IGMP, IP in IP, TCP, GRP, IGP, UDP, GRE, EIGRP, or OSPF.
Create	Click on this button to create a new filter rule in the table.

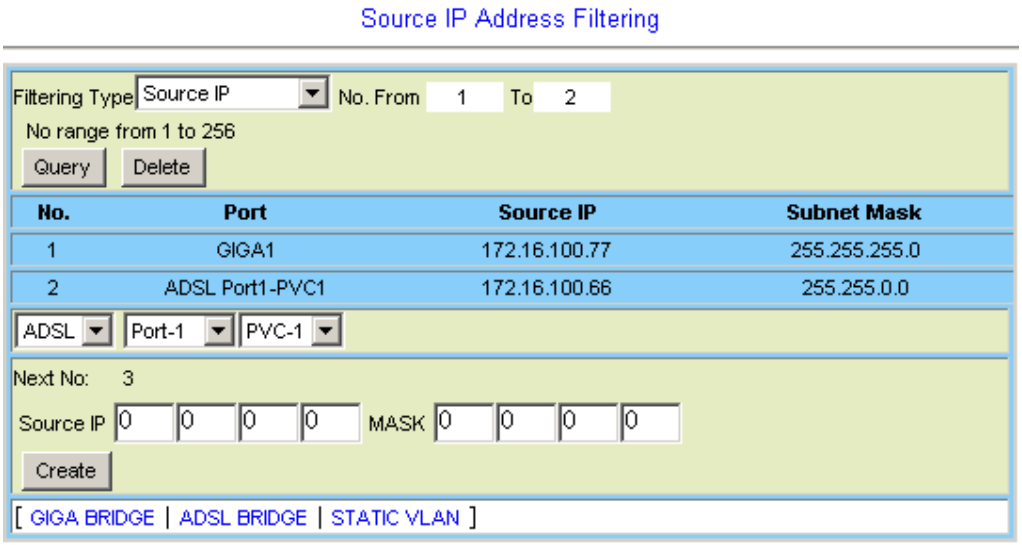
Source MAC Filtering



Source MAC Filtering Setup

Label	Description
Filtering Type	You can also select the filtering type here.
No. From…To…	Type in the range of serial number in the filter rule table. Valid number value: 1 ~ 256.
Query	Once you have specified the serial number, click on this button to display the filter rules.
Delete	Once you have specified the serial number, click on this button to delete the filter rules in the table.
ADSL Port-1 PVC-1	Click on these drop-down lists to select an ADSL bridge port or GIGA bridge port.
Source MAC	Type in the MAC Address of the source.
Create	Click on this button to create a new filter rule in the table.

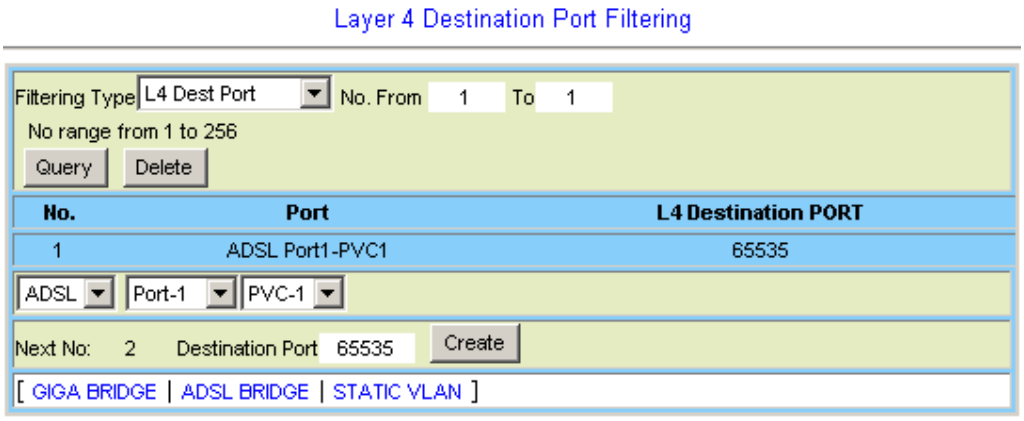
IP Address Filtering



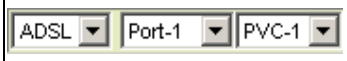
Source IP Address Filtering Setup

Label	Description
Filtering Type	You can also select the filtering type here.
No. From…To…	Type in the range of serial number in the filter rule table. Valid number value: 1 ~ 256.
Query	Once you have specified the serial number, click on this button to display the filter rules.
Delete	Once you have specified the serial number, click on this button to delete the filter rules in the table.
ADSL Port-1 PVC-1	Click on these drop-down lists to select an ADSL bridge port or GIGA bridge port.
Source IP	Type in the IP Address of the source.
MASK	Type in the subnet mask.
Create	Click on this button to create a new filter rule in the table.

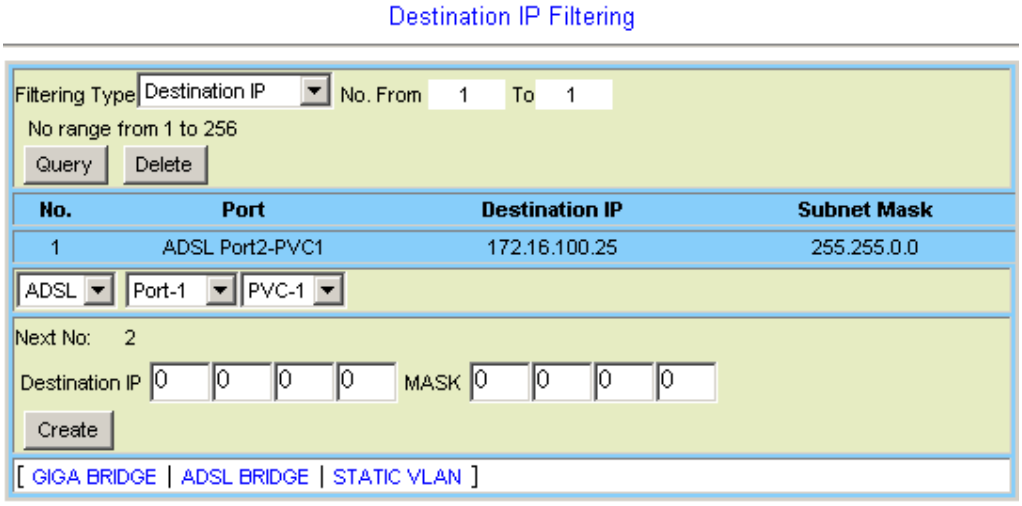
Layer 4 Destination Port Filtering



Layer 4 Destination Port Filtering Setup

Label	Description
Filtering Type	You can also select the filtering type here.
No. From…To…	Type in the range of serial number in the filter rule table. Valid number value: 1 ~ 256.
Query	Once you have specified the serial number, click on this button to display the filter rules.
Delete	Once you have specified the serial number, click on this button to delete the filter rules in the table.
	Click on these drop-down lists to select an ADSL bridge port or GIGA bridge port.
Destination Port	Type in the Destination Port number (1 ~ 65535).
Create	Click on this button to create a new filter rule in the table.

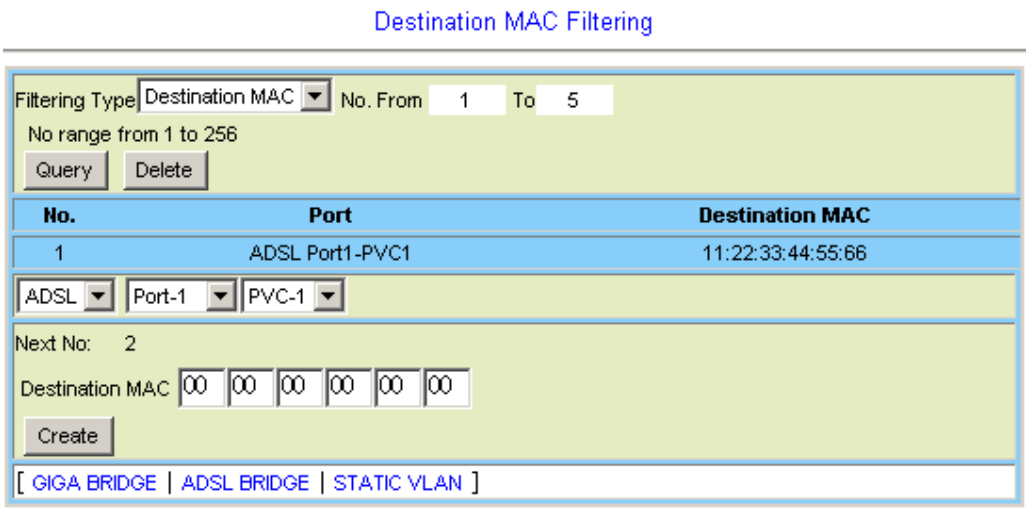
Destination IP Filtering



Destination IP Filtering Setup

Label	Description
Filtering Type	You can also select the filtering type here.
No. From…To…	Type in the range of serial number in the filter rule table. Valid number value: 1 ~ 256.
Query	Once you have specified the serial number, click on this button to display the filter rules.
Delete	Once you have specified the serial number, click on this button to delete the filter rules in the table.
ADSL Port-1 PVC-1	Click on these drop-down lists to select an ADSL bridge port or GIGA bridge port.
Destination IP	Type in the Destination IP address.
MASK	Type in the subnet mask.
Create	Click on this button to create a new filter rule in the table.

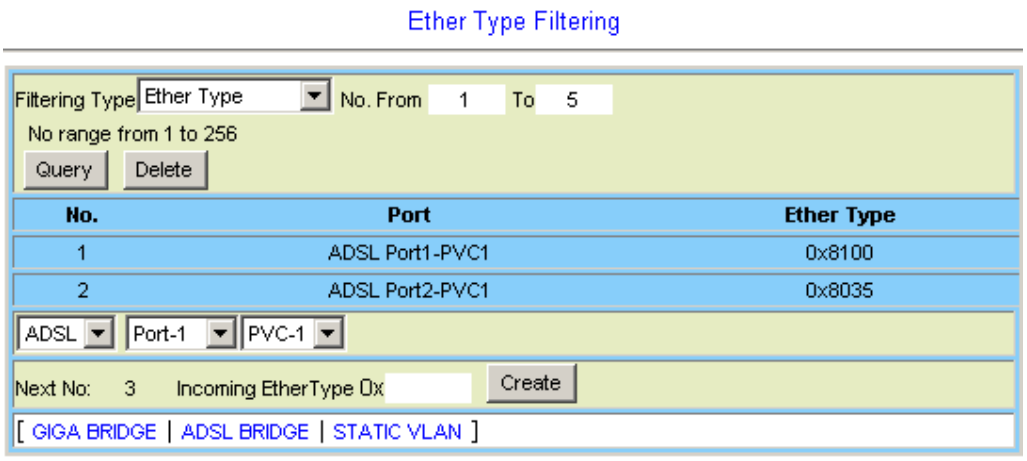
Destination MAC Filtering



Destination IP Filtering Setup

Label	Description
Filtering Type	You can also select the filtering type here.
No. From…To…	Type in the range of serial number in the filter rule table. Valid number value: 1 ~ 256.
Query	Once you have specified the serial number, click on this button to display the filter rules.
Delete	Once you have specified the serial number, click on this button to delete the filter rules in the table.
ADSL Port-1 PVC-1	Click on these drop-down lists to select an ADSL bridge port or GIGA bridge port.
Destination MAC	Type in the Destination MAC address.
Create	Click on this button to create a new filter rule in the table.

Ether Type Filtering

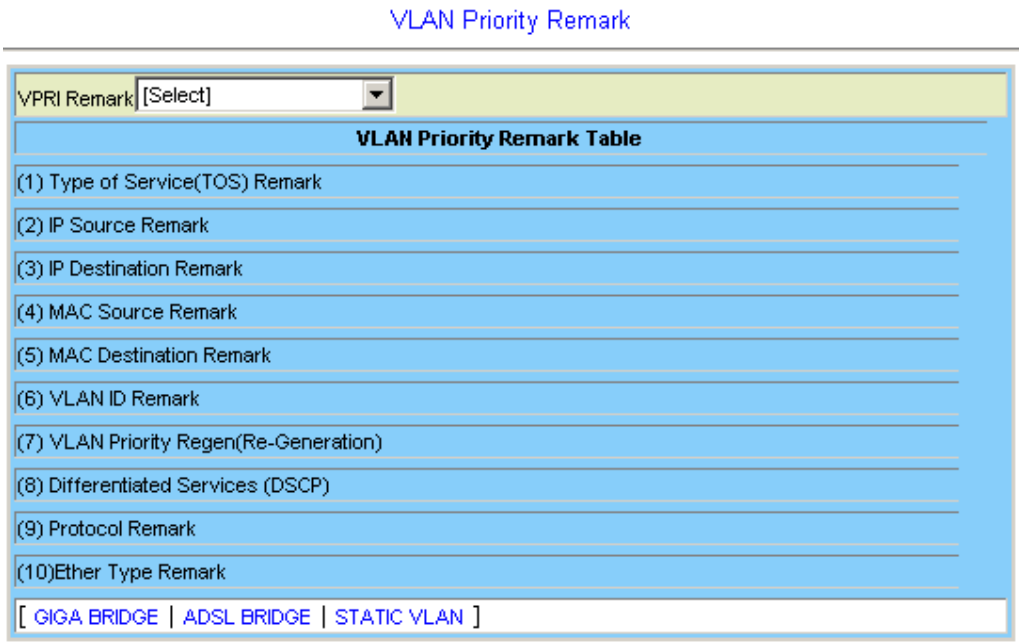


Destination IP Filtering Setup

Label	Description
Filtering Type	You can also select the filtering type here.
No. From…To…	Type in the range of serial number in the filter rule table. Valid number value: 1 ~ 256.
Query	Once you have specified the serial number, click on this button to display the filter rules.
Delete	Once you have specified the serial number, click on this button to delete the filter rules in the table.
ADSL Port-1 PVC-1	Click on these drop-down lists to select an ADSL bridge port or GIGA bridge port.
Incoming Ether Type	Type in the EtherType value (hexadecimal).
Create	Click on this button to create a new filter rule in the table.

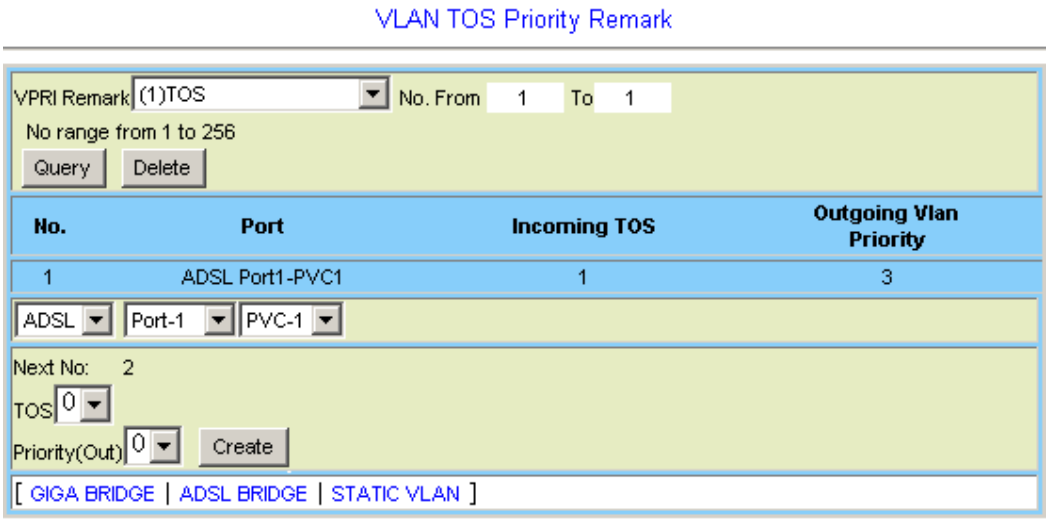
4.2.4.2 VLAN Priority Remark

This option allows you to configure the VLAN priority. From the *Bridge* menu, click on *Access Control* and then *VLAN Priority Remark*. The following page is displayed:



Click on the *VPRI Remark* drop-down list and select a type of VLAN Priority Remark. Available options include Type of Service (TOS), IP Source, IP Destination, MAC Source, MAC Destination, VLAN ID, VLAN Priority Regeneration, Differentiated Services (DSCP), Protocol, and Ether Type.

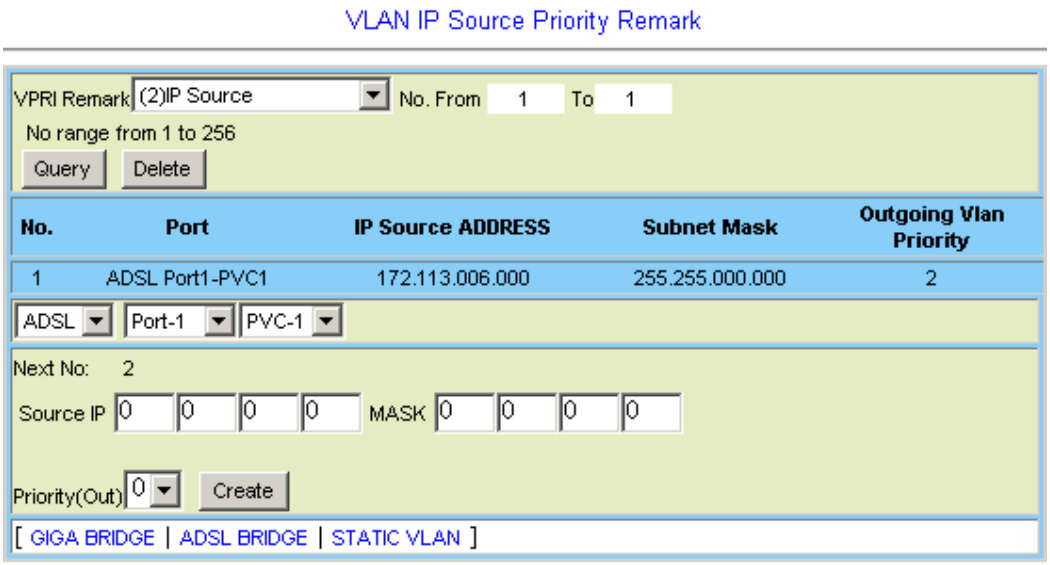
✧ TOS



VLAN Priority Remark Setup - TOS

Label	Description
VPRI Remark	You can also select the priority remark type here.
No. From …To…	Type in the range of entry number in the table you want to view (value range is 1~256).
Query	To query entries, type in the entry number range and then click on this button to retrieve.
Delete	To delete entries, type in the entry number range and then click on this button to delete.
ADSL Port-1 PVC-1	Click on these drop-down list to select an ADSL bridge port or GIGA bridge port.
TOS	In order to provide basic support for classes of service to the Internet Protocol. The IP protocol header contains what is known as the ToS (Type of Service) bits. Click on the drop-down list and select incoming TOS (value range 0 ~ 7), then you can create the mapping between TOS and VLAN priority.
Priority (Out)	Click on the drop-down list and select the outgoing VLAN priority (0 ~ 7).
Create	Click on this button to create a new entry in the table.

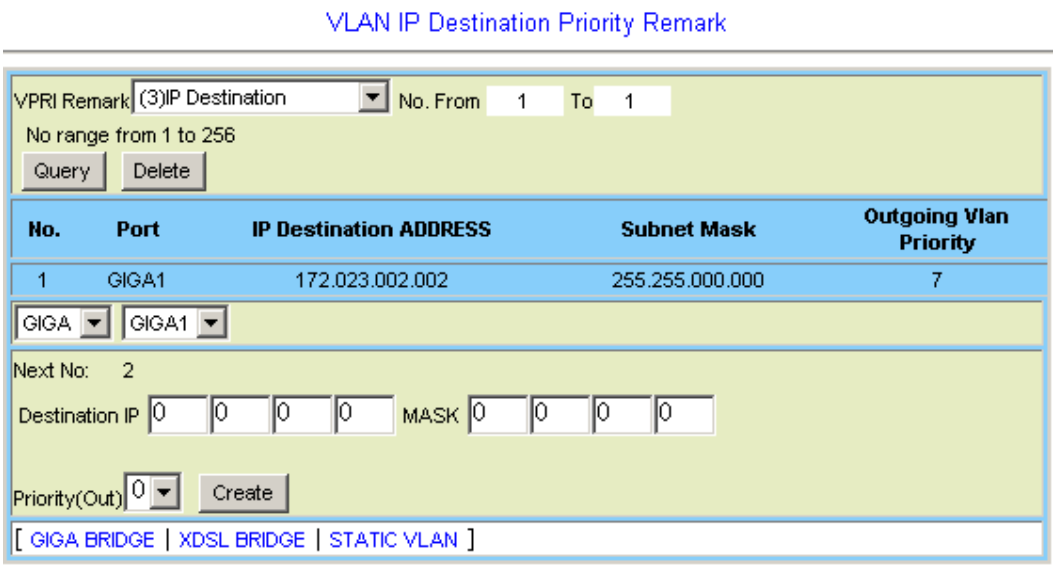
✧ IP Source



VLAN Priority Remark Setup – IP Source

Label	Description
VPRI Remark	You can also select the priority remark type here.
No. From …To…	Type in the range of entry number in the table you want to view (value range is 1~256).
Query	To query entries, type in the entry number range and then click on this button to retrieve.
Delete	To delete entries, type in the entry number range and then click on this button to delete.
ADSL Port-1 PVC-1	Click on these drop-down list to select an ADSL bridge port or GIGA bridge port.
Source IP	Type in the IP address of the coming source.
MASK	Type in the subnet mask.
Priority (Out)	Click on the drop-down list and select the outgoing VLAN priority (0 ~ 7).
Create	Click on this button to create a new entry in the table.

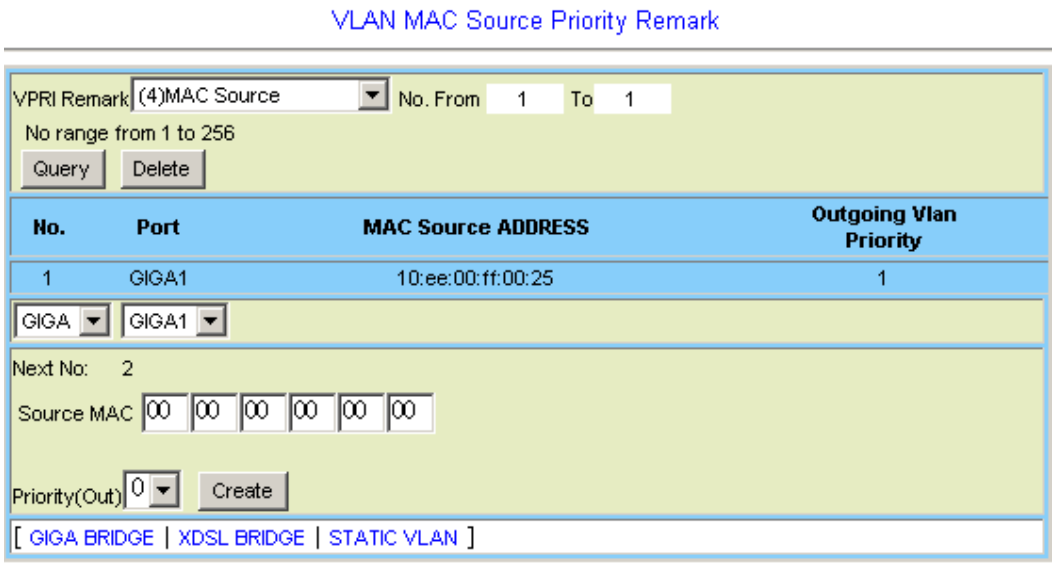
✧ IP Destination



VLAN Priority Remark Setup – IP Destination

Label	Description
VPRI Remark	You can also select the priority remark type here.
No. From …To…	Type in the range of entry number in the table you want to view (value range is 1~256).
Query	To query entries, type in the entry number range and then click on this button to retrieve.
Delete	To delete entries, type in the entry number range and then click on this button to delete.
GIGA GIGA1	Click on these drop-down list to select an ADSL bridge port or GIGA bridge port.
Source IP	Type in the IP address of the coming source.
MASK	Type in the subnet mask.
Priority (Out)	Click on the drop-down list and select the outgoing VLAN priority (0 ~ 7).
Create	Click on this button to create a new entry in the table.

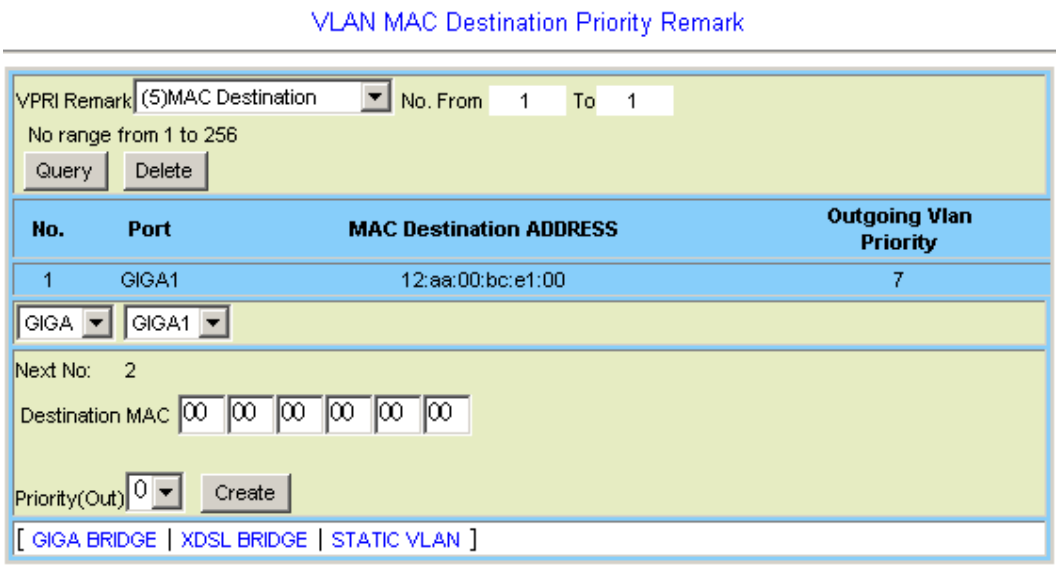
✧ MAC Source



VLAN Priority Remark Setup – MAC Source

Label	Description
VPRI Remark	You can also select the priority remark type here.
No. From …To…	Type in the range of entry number in the table you want to view (value range is 1~256).
Query	To query entries, type in the entry number range and then click on this button to retrieve.
Delete	To delete entries, type in the entry number range and then click on this button to delete.
GIGA GIGA1	Click on these drop-down list to select an ADSL bridge port or GIGA bridge port.
Source MAC	Type in the MAC Address of the coming source.
Priority (Out)	Click on the drop-down list and select the outgoing VLAN priority (0 ~ 7).
Create	Click on this button to create a new entry in the table.

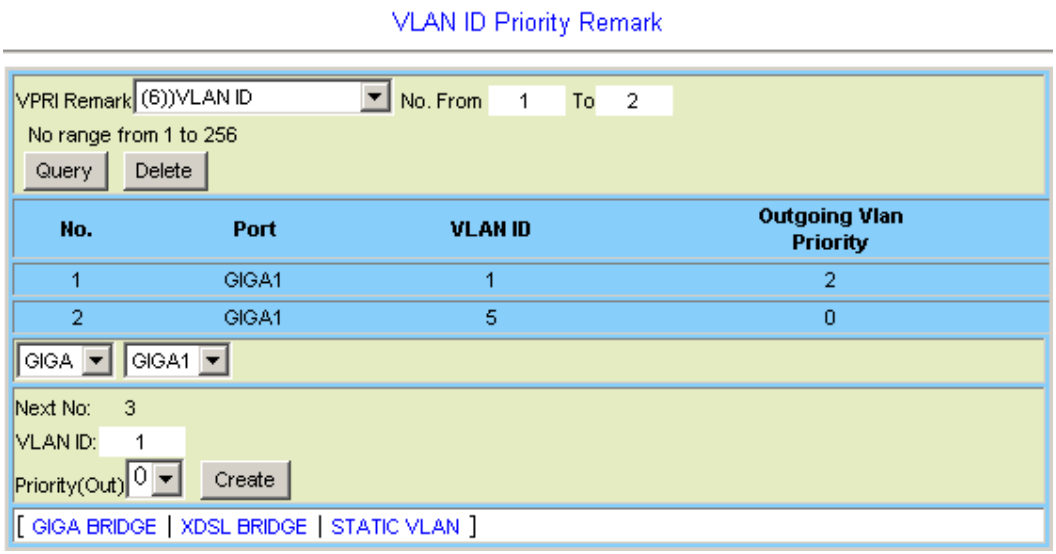
✧ MAC Destination



VLAN Priority Remark Setup – MAC Destination

Label	Description
VPRI Remark	You can also select the priority remark type here.
No. From …To…	Type in the range of entry number in the table you want to view (value range is 1~256).
Query	To query entries, type in the entry number range and then click on this button to retrieve.
Delete	To delete entries, type in the entry number range and then click on this button to delete.
GIGA GIGA1	Click on these drop-down list to select an ADSL bridge port or GIGA bridge port.
Destination MAC	Type in the MAC Address of the destination.
Priority (Out)	Click on the drop-down list and select the outgoing VLAN priority (0 ~ 7).
Create	Click on this button to create a new entry in the table.

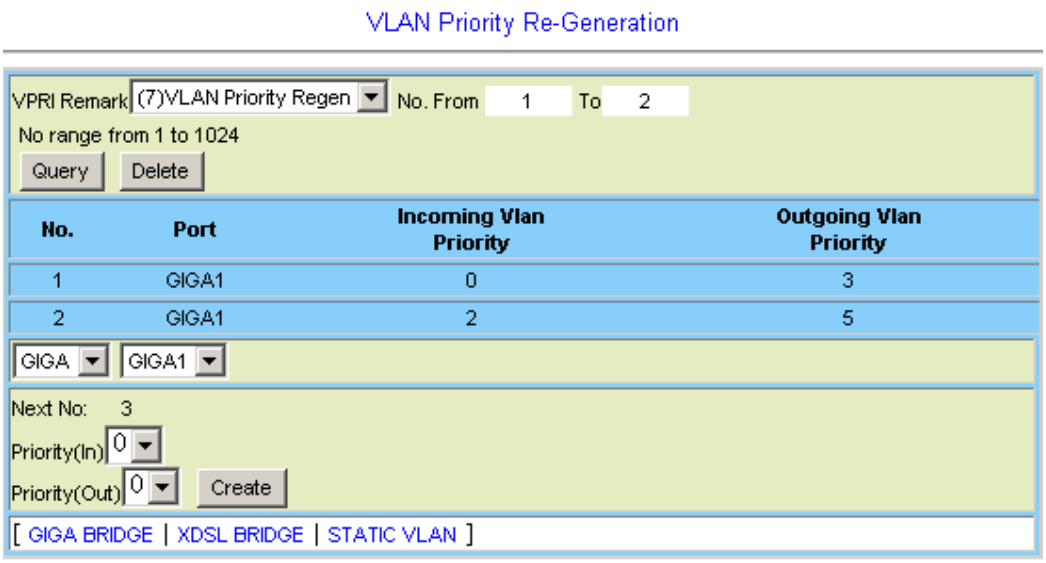
✧ VLAN ID



VLAN Priority Remark Setup – VLAN ID

Label	Description
VPRI Remark	You can also select the priority remark type here.
No. From …To…	Type in the range of entry number in the table you want to view (value range is 1~256).
Query	To query entries, type in the entry number range and then click on this button to retrieve.
Delete	To delete entries, type in the entry number range and then click on this button to delete.
GIGA GIGA1	Click on these drop-down list to select an ADSL bridge port or GIGA bridge port.
VLAN ID	Type in the VLAN ID (1 ~ 4094).
Priority (Out)	Click on the drop-down list and select the outgoing VLAN priority (0 ~ 7).
Create	Click on this button to create a new entry in the table.

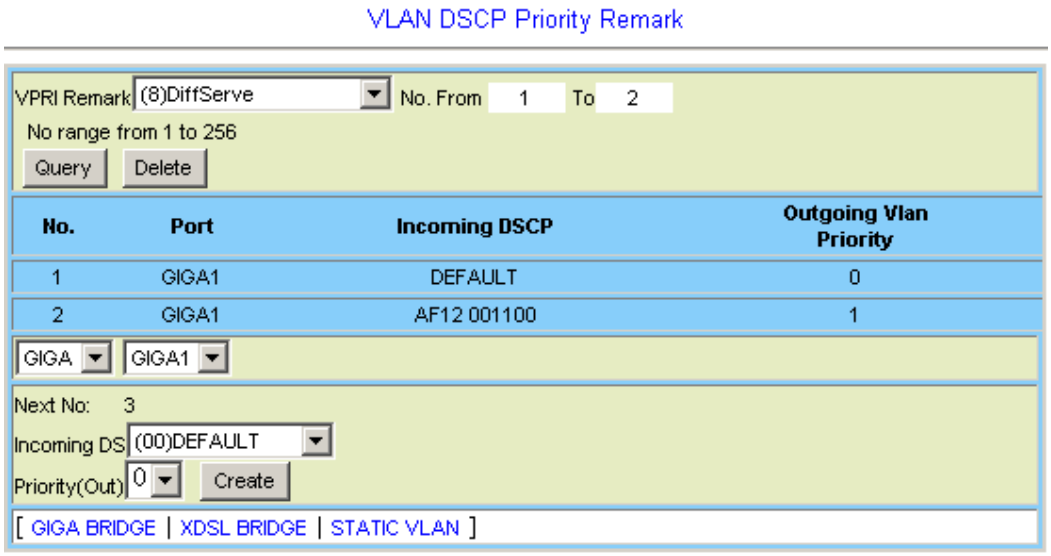
✧ VLAN Priority Regeneration



VLAN Priority Remark Setup – VLAN Priority Regeneration

Label	Description
VPRI Remark	You can also select the priority remark type here.
No. From …To…	Type in the range of entry number in the table you want to view (value range is 1~256).
Query	To query entries, type in the entry number range and then click on this button to retrieve.
Delete	To delete entries, type in the entry number range and then click on this button to delete.
GIGA GIGA1	Click on these drop-down list to select an ADSL bridge port or GIGA bridge port.
Priority (In)	Click on the drop-down list and select the incoming VLAN Priority (0 ~ 7).
Priority (Out)	Click on the drop-down list and select the outgoing VLAN priority (0 ~ 7).
Create	Click on this button to create a new entry in the table.

✧ Differentiated Services

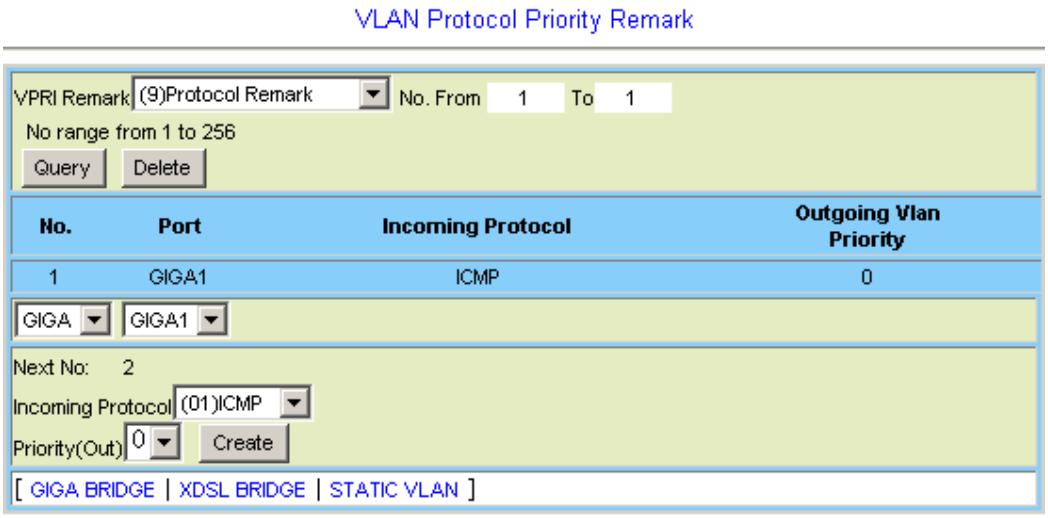


VLAN Priority Remark Setup – Differentiated Services

Label	Description
VPRI Remark	You can also select the priority remark type here.
No. From …To…	Type in the range of entry number in the table you want to view (value range is 1~256).
Query	To query entries, type in the entry number range and then click on this button to retrieve.
Delete	To delete entries, type in the entry number range and then click on this button to delete.
GIGA GIGA1	Click on these drop-down list to select an ADSL bridge port or GIGA bridge port.
Incoming DS	Click on the drop-down list and select the incoming DSCP (Diffserv Code Points, which is a 6-bit number). The standardized combinations are listed below: default Default value (bits:000000) af11 Assured Forwarding Class 1:Low Drop (bits:001010) af12 Assured Forwarding Class 1:Medium Drop (bits:001100) af13 Assured Forwarding Class 1:High Drop (bits:001110) af21 Assured Forwarding Class 2:Low Drop (bits:010010) af22 Assured Forwarding Class 2:Medium Drop (bits:010100) af23 Assured Forwarding Class 2:High Drop (bits:010110)

	af31 Assured Forwarding Class 3:Low Drop (bits:011010) af32 Assured Forwarding Class 3:Medium Drop (bits:011100) af33 Assured Forwarding Class 3:High Drop (bits:011110) af41 Assured Forwarding Class 4:Low Drop (bits:100010) af42 Assured Forwarding Class 4:Medium Drop (bits:100100) af43 Assured Forwarding Class 4:High Drop (bits:100110) ef Expedited Forwarding (bits:101110)
Priority (Out)	Click on the drop-down list and select the outgoing VLAN priority (0 ~ 7).
Create	Click on this button to create a new entry in the table.

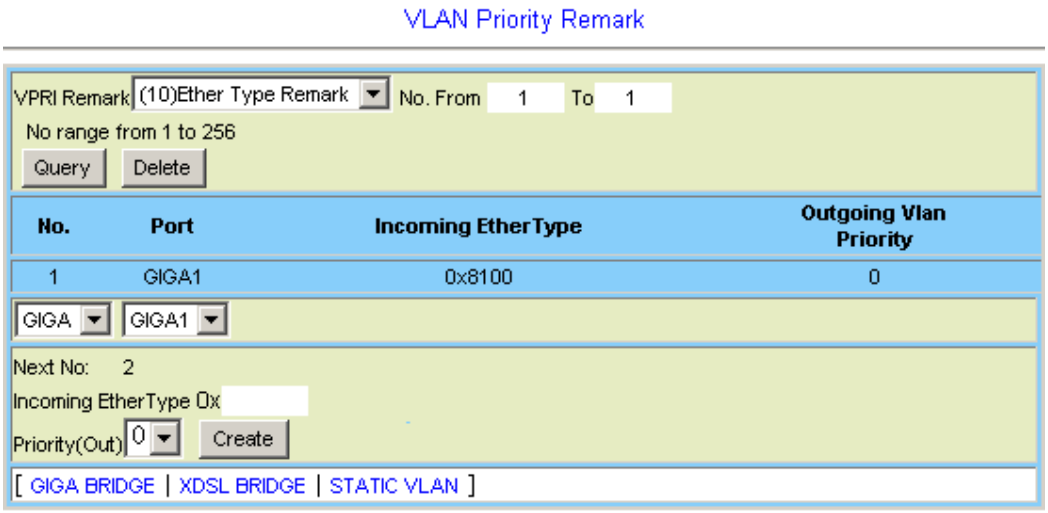
✧ Protocol



VLAN Priority Remark Setup – Protocol

Label	Description
VPRI Remark	You can also select the priority remark type here.
No. From …To…	Type in the range of entry number in the table you want to view (value range is 1~256).
Query	To query entries, type in the entry number range and then click on this button to retrieve.
Delete	To delete entries, type in the entry number range and then click on this button to delete.
GIGA GIGA1	Click on these drop-down list to select an ADSL bridge port or GIGA bridge port.
Incoming Protocol	Click on the drop-down list and select the incoming protocol. Available options are: ICMP, IGMP, IP in IP, TCP, GRP, IGP, UDP, GRE, IGRP, or OSPF.
Priority (Out)	Click on the drop-down list and select the outgoing VLAN priority (0 ~ 7).
Create	Click on this button to create a new entry in the table.

✧ Ether Type

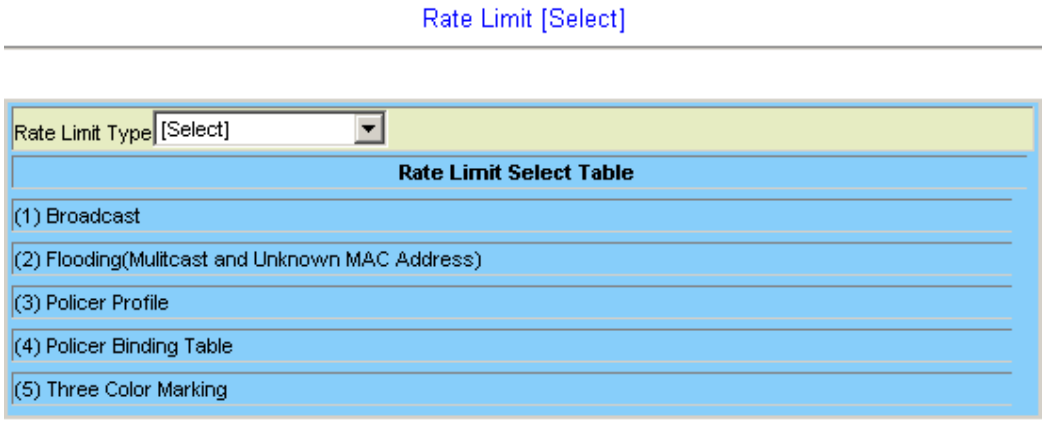


VLAN Priority Remark Setup – Ether Type

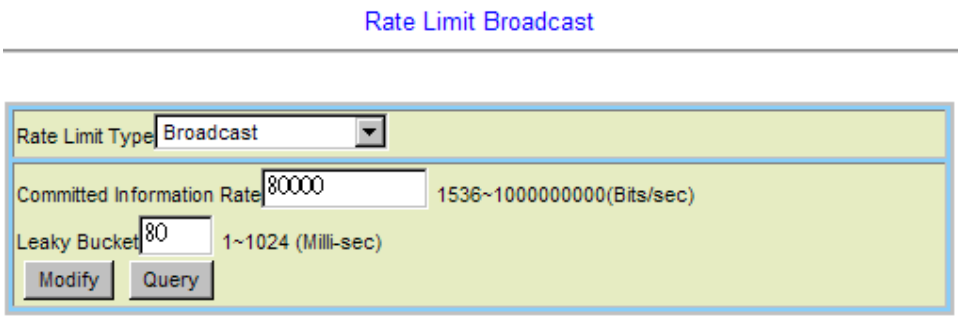
Label	Description
VPRI Remark	You can also select the priority remark type here.
No. From …To…	Type in the range of entry number in the table you want to view (value range is 1~256).
Query	To query entries, type in the entry number range and then click on this button to retrieve.
Delete	To delete entries, type in the entry number range and then click on this button to delete.
GIGA GIGA1	Click on these drop-down list to select an ADSL bridge port or GIGA bridge port.
Incoming EtherType	Type in the EtherType value (hexadecimal).
Priority (Out)	Click on the drop-down list and select the outgoing VLAN priority (0 ~ 7).
Create	Click on this button to create a new entry in the table.

4.2.4.3 Rate Limit

This option allows you to limit the rate of broadcast/multicast packets that are received on a VLAN, and configure the Three Color Marking (TCM) Policer profile. From the *Bridge* menu, click on *Access Control* and then *Rate Limit*. The following page is displayed. Click on the *Rate Limit Type* drop-down list and select the item you want to setup.



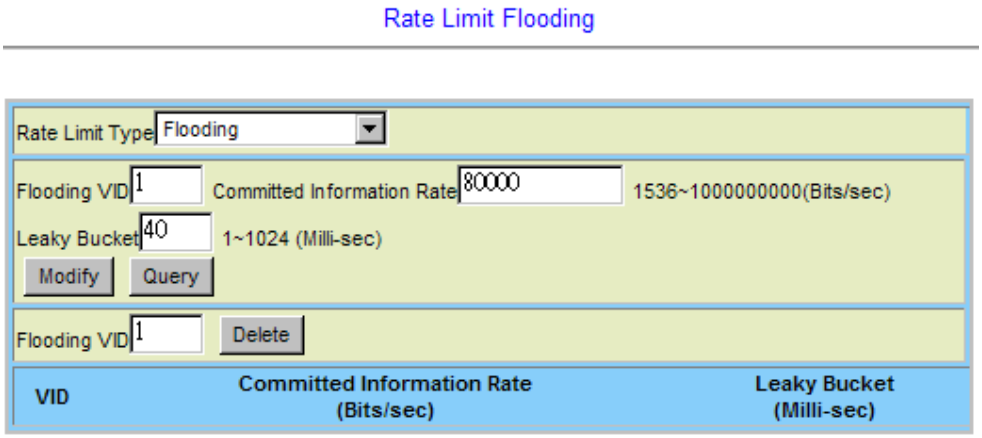
✧ **Rate Limit Broadcast**



Rate Limit Broadcast Setup

Label	Description
Rate Limit Type	Click on this drop-down list and select the item you want to setup.
Committed Information Rate	Committed Information Rate (1536 ~ 1G bits per second). The threshold rate to turn on the rate-limit mechanism.
Leaky Bucket	Leaky bucket size. The unit is millisecond. This parameter ranges from 1 to 1024. The bucket depth is the product of CIR and this parameter.
Modify	Click on this button to modify data in the table.
Query	Click on this button to get most recent status.

✧ Rate Limit Flooding



Rate Limit Flooding Setup

Label	Description
Rate Limit Type	Click on this drop-down list and select the item you want to setup.
Flooding VID	Type in VLAN ID (1 ~ 4094). The VLAN must have been created in the static VLAN table.
Committed Information Rate	Committed Information Rate (1536 ~ 1G bits per second). The threshold rate to turn on the rate-limit mechanism.
Leaky Bucket	Leaky bucket size. The unit is millisecond. This parameter ranges from 1 to 1024. The bucket depth is the product of CIR and this parameter.
Modify	Click on this button to modify data in the table.
Query	Click on this button to get most recent status.

✧ **Rate Limit Policer profile**

The VX-1000HDX/MDS supports two kinds of TCM Policer: two-rate TCM (with dual leaky buckets) and single-rate TCM (with single leaky bucket).

The single-rate TCM meters a traffic stream and marks its packets according to Committed Information Rate (CIR) and Committed Burst Size (CBS) to be either green, or red. The single-rate TCM operates with a single leaky bucket that is updated according to only one rate, the committed information rate - CIR. A packet is marked green if the leaky bucket is not full and red otherwise.

The two-rate TCM meters a traffic stream and marks its packets based on two rates, Committed Information Rate (CIR) and Excess Information Rate (EIR), and their associated burst sizes, Committed Burst Size (CBS) and Excess Burst Size (EBS), to be either green, yellow, or red. The two-rate TCM operates with dual leaky bucket, where each bucket is updated according to a different rate. The first bucket is updated according to the CIR, the second bucket is updated according to the EIR. A packet is marked red if it exceeds the PIR. Otherwise it is marked either yellow or green depending on whether it exceeds or doesn't exceed the EIR.

Rate Limit Policer Profile

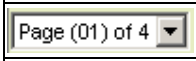
Rate Limit Type: Policer Profile

Page (01) of 4 | Modify | Delete | Query

CIR(Committed Info Rate),EIR(Excess Info Rate),LBS(Leaky Bucket Size)
DLB(Dual Leaky Bucket),SLB(Single Leaky Bucket)
CIR & 1st LBS are supported in both SLB and DLB mode
EIR & 2nd LBS only in DLB mode

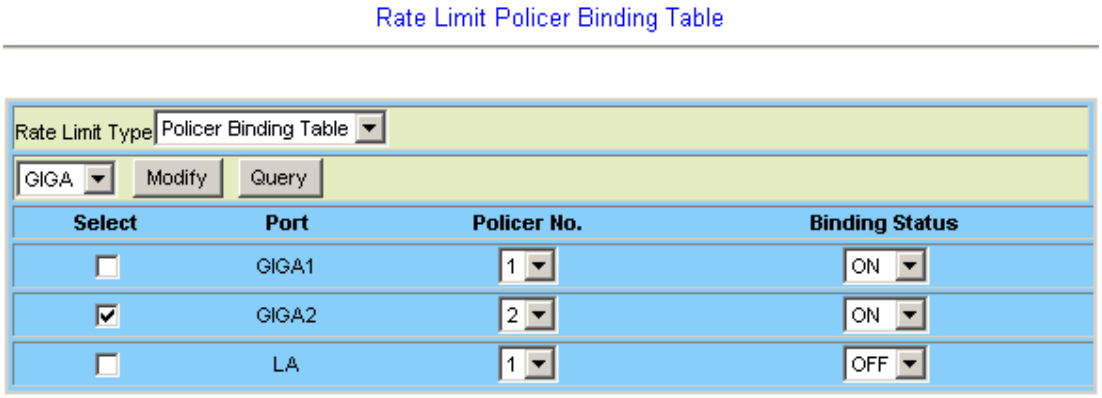
Select	No	Share Mode	LB Mode	CIR (1536..1G bps)	EIR (1536..1G bps)	1st LBS (1..1K ms)	2nd LBS (1..1K ms)	Status
☐	1	Share	Single	20000	--	50	--	Complete
☑	2	NO Share	Dual	80000	80000	20	200	Complete
☐	3	Select	Select					Non-Complete
☐	4	Select	Select					Non-Complete
☐	5	Select	Select					Non-Complete
☐	6	Select	Select					Non-Complete
☐	7	Select	Select					Non-Complete
☐	8	Select	Select					Non-Complete
☐	9	Select	Select					Non-Complete
☐	10	Select	Select					Non-Complete
☐	11	Select	Select					Non-Complete
☐	12	Select	Select					Non-Complete

Rate Limit Poicer Setup

Label	Description
Rate Limit Type	Click on this drop-down list and select the item you want to setup.
	Click on this drop-down list and select a page to be displayed.
Select	Select the checkbox when you want to create/modify/delete this entry.
Share Mode	**Share** mode: All the bridge ports which bind to the share mode policer profile will share the same Leaky Bucket defined by the CIR, EIR…parameters. So in Share mode, system only creates one Leaky Bucket for all the binding bridge ports. **No Share** mode: Every bridge port which bind to the non-share policer profile will have its own Leaky Bucket.
LB Mode	**Single**: Single Leaky Bucket. For SLB, there is one controlling parameter: CIR. **Dual**: Dual Leaky Bucket. For DLB, there are two controlling parameters: CIR and EIR.
CIR	Committed Information Rate (1536 ~ 1G bits per second) controls the number of tokens in the first bucket (CBS bucket).
EIR	Excess Information Rate (1536 ~ 1G bits per second) controls the number of tokens in the second bucket (EBS bucket).
1st LBS	1st Leaky Bucket Size. The unit is millisecond. This parameter ranges from 1 to 1024. The first bucket depth is the product of CIR and this parameter.
2nd LBS	2nd Leaky Bucket Size. The unit is millisecond. This parameter ranges from 1 to 1024. The second bucket depth is the product of EIR and this parameter.
Create	Click on this button to create a new entry in the rate limit table.
Query	Click on this button to retrieve the entries in the table.
Delete	Click on this button to delete the entries in the table.

✧ Rate Limit Policer Binding Table

The Rate Limit Policer Binding Table allows you to specify which Policer profile to bind and the binding status for a trunk or line bridge port.



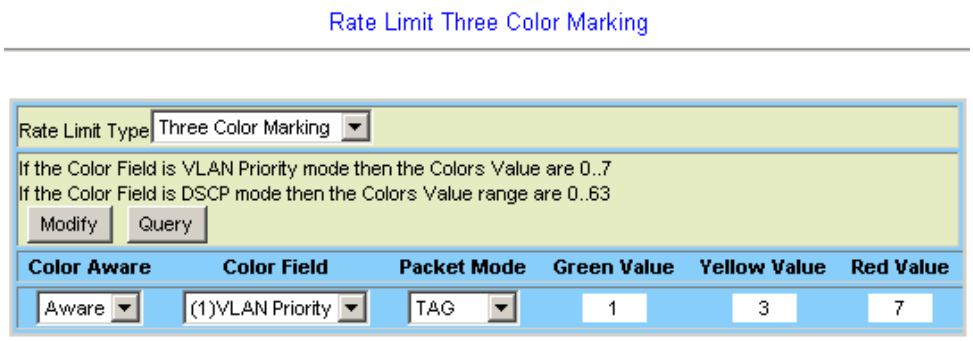
Rate Limit Policer Binding Setup

Label	Description
Rate Limit Type	Click on this drop-down list and select the item you want to setup.
GIGA	Click on the drop-down list to select a line or trunk bridge port.
Modify	Once you have finished setting the parameter values, click on this button to submit the modification.
Query	Click on this button to get most recent data.
Select	Remember to select the checkbox when you want to modify this entry.
Policer No.	Click on the drop-down list and select the Policer profile you want to bind with this port.
Binding Status	Select to bind (ON) or unbind (OFF) the Policer profile.

✧ Three Color Marking Policer

The DSLAM supports TCM Policer in accordance with the Metro Ethernet Forum (MEF) Bandwidth Profile and RFCs 2697 & 2698. Our TCM Policer supports both Color Aware and Color Blind modes. The “color” is used for determining whether a packet will proceed to the policer when TCM Policer works in Color Aware mode; also in the policer the packet may be remarked with new color according to the packet’s conformance to the policer rules. A packet is considered green when it enters the TCM Policer only if its input color field, VLAN priority bits or DSCP field, has the same value with the green value configured in this page (see the following figure and parameter description). Likewise, a packet is considered yellow only if its input color field has the same value with the yellow value configured in this page. All other values are considered red.

Once a packet has passed through the TCM Policer, it will be directed to the class queues for scheduling.

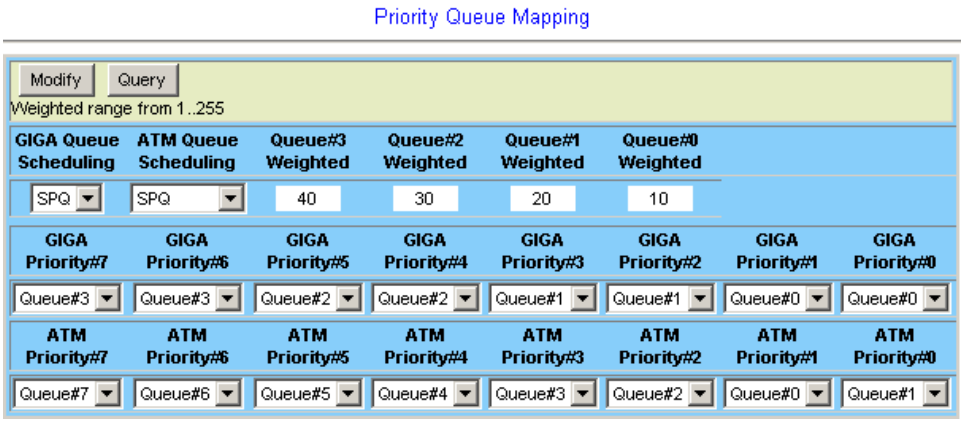


Rate Limit Policer Binding Setup

Label	Description
Rate Limit Type	Click on this drop-down list and select the item you want to setup.
Modify	Once you have finished setting the parameter values, click on this button to submit the modification.
Query	Click on this button to get most recent data.
Color Aware	**Color aware** mode: the packets are classified before they’re sent through the policer. **Color blind** mode: the packets are directed through the entire policer regardless of their color.
Color Field	There are two fields you can select for determining the packet’s input color: the VLAN priority bits within the Ethernet header or the DSCP field within the IP header.
Packet Mode	This parameter defines the action for non-conforming packets. You can choose Tag or Discard. If Tag is chosen, then all the packets will be marked as red in the Color field rather than be discarded.
Green Value	Type in the green color value that is used when determining a packet’s input color (for Color Aware mode) or remarking a packet’s output color as green. Valid value is 0 ~ 7 for VLAN Priority color field or 0 ~ 63 for DSCP color field.
Yellow Value	Type in the yellow color value that is used when determining a packet’s input color (for Color Aware mode) or remarking a packet’s output color as yellow. Valid value is 0 ~ 7 for VLAN Priority color field or 0 ~ 63 for DSCP color field.
Red Value	Type in the red color value that is used when remarking a packet’s output color as red. Valid value is 0 ~ 7 for VLAN Priority color field or 0 ~ 63 for DSCP color field.

4.2.4.4 Priority Queue Mapping

This web page is used to select SPQ/WFQ/WRR queuing mechanism and to setup the mapping between VLAN priority levels and system internal queues. From the *Bridge* menu, click on *Access Control* and then *Priority Queue Mapping*. The following page is displayed:



The queues for Giga and ATM interfaces are different.

Giga:

Each Giga interface has 4 Queues and these queues can only work on Strict Priority Queuing (SPQ) scheduling. The priorities of these queues are: Q3 > Q2 > Q1 > Q0.

ATM:

Each ATM PVC bridge interface on each ADSL port has 8 Queues and can work in SPQ or SPQ/WFQ mix mode.
For SPQ, the priorities of these queues are: Q7 > Q6 > Q5 > Q4 > Q3 > Q2 > Q1 > Q0.
For SPQ/WFQ mixed, the priority of SPQ queues (Q7~Q4) is higher than WFQ queues (Q3~Q0).
And:
Q7 ~ Q4 are for SPQ and the priorities are Q7 > Q6 > Q5 > Q4.
Q3 ~ Q0 are for WFQ (Weighted Fair Queuing) and you can define the weight value for Q3 ~ Q0.

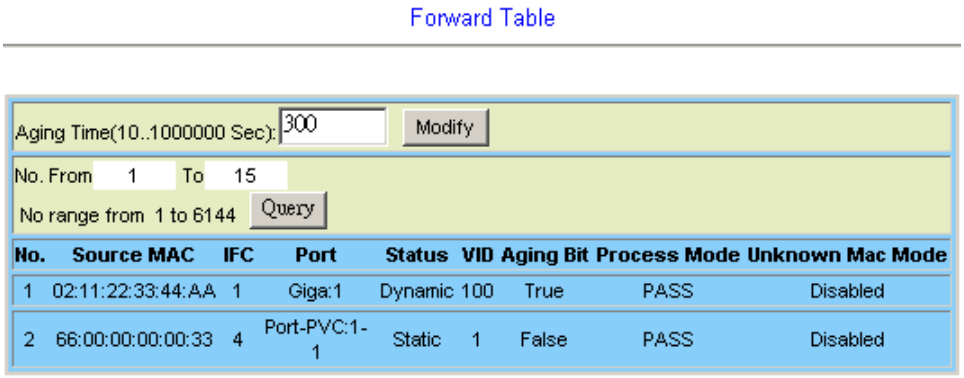
Note that if each queue has different weight value, the system will work as WFQ mode. If all queues have the same weight value, the system will work as Weighted Round Robin (WRR) mode.

The system allows 8 priority levels fully work as WFQ or WRR mode, via using queues of Q3 ~ Q0 only in the Priority Queue Mapping table.

4.2.5 Forwarding

4.2.5.1 TP Forwarding DB

This option allows you to retrieve the status of the transparent forwarding database. The forwarding table will reveal the information of MAC addresses that are learned or statically configured on a specific bridge port. From the *Bridge* menu, click on *Forwarding* and then *TP Forwarding DB*. The following page is displayed.

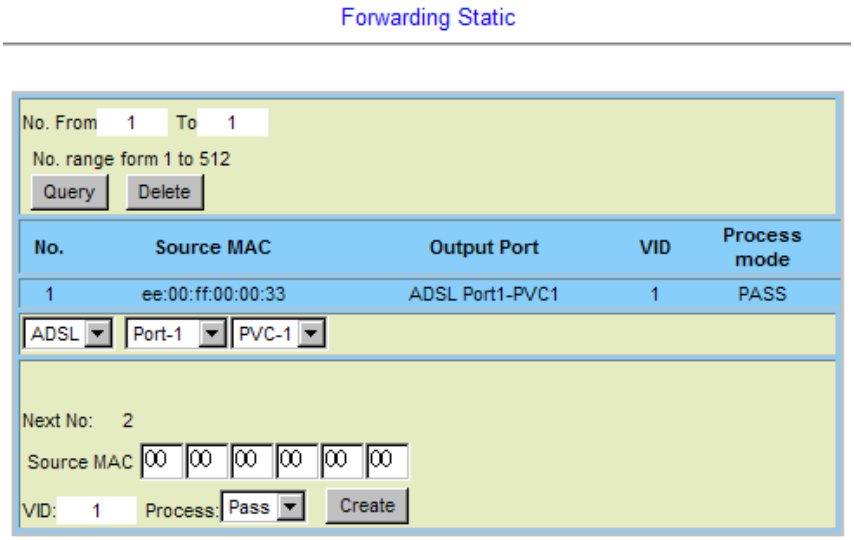


TP Forwarding DB

Label	Description
Aging Time	Type in the aging time in seconds. An entry will be removed from the FDB (aged-out) if the device does not transmit for a specified period of time (the aging time).
Modify	Click on this button to submit the modification of Aging Time.
No. From…To…	Select the range of entry number in the forwarding database to be displayed.
Query	Once you have selected the entry number, click on this button to get most recent status of MAC addresses forwarding.

4.2.5.2 Forwarding Static

This option allows you to configure the static MAC address forwarding entries on a specific bridge port. The setting of static MAC address takes effect on egress direction of bridge port. From the *Bridge* menu, click on *Forwarding* and then *Forwarding Static*. The following page is displayed.



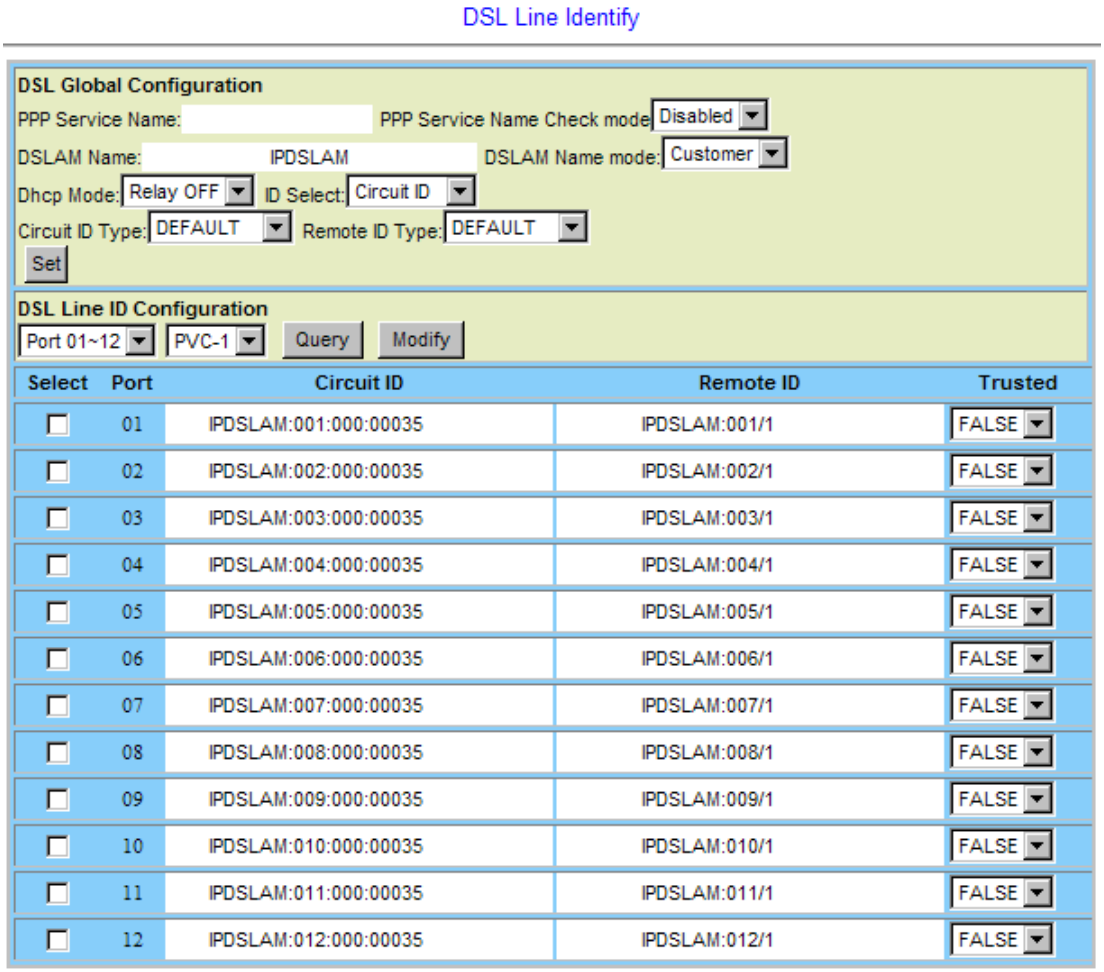
Forwarding Static

Label	Description
No. From…To…	Select the range of entry number in the FDB to be retrieved. Valid number value: 1 ~ 512.
Query	Click on this button to display the static MAC forwarding entries.
Delete	Delete the entries according to the entry number range you type in.
GIGA GIGA1	Click on these drop-down list to select a bridge port (ADSL bridge port or GIGA bridge port) where the static forwarding entries to be configured.
Source MAC	Type in the MAC address for the static entry.
VID	Type in the VID for the static entry (1 ~ 4094).
Process	Click on the drop-down list and select “Deny” or “Pass”. "Pass" means to forward the packets with destination MAC address matching one of the static forwarding MAC addresses to a specified output bridge port. "Deny" means to drop the packets.
Create	Click on this button to create a new entry.

4.2.6 Relay

4.2.6.1 DSL Line Identify

This option allows you to configure the DHCP option 82 and PPPoE relay function. From the *Bridge* menu, click on *Relay* and then *DSL Line Identify*. The following page is displayed:



DSL Line Identify Setup

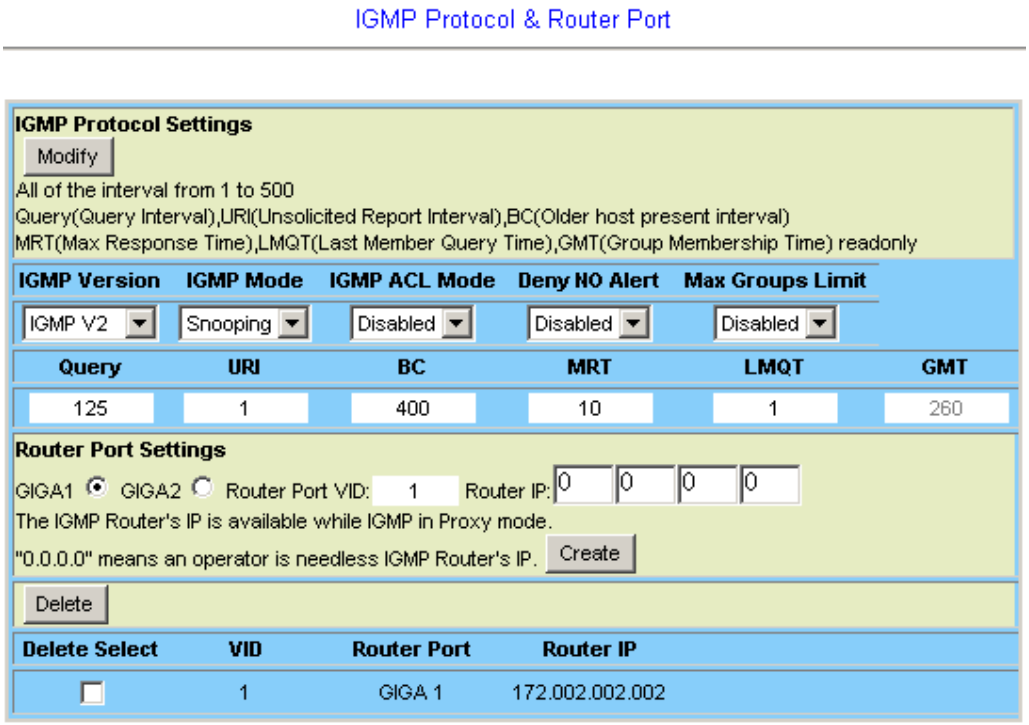
Label	Description
DSL Global Configuration	
PPP Service Name	Type in the PPPoE service name to add.
PPP Service Name Check mode	Enable: the system will check whether the PPPoE service names from the PPPoE server and client are the same. If not the same, the PPP connection between server and client will not be established. Disable: the system will not check the PPPoE service name.
DSLAM Name	Type in name of the DSLAM when DSLAM Name mode is set to 'Customer'.
DSLAM Name mode:	Select the DSLAM name to be customer-defined or cluster name (Domain name:NE name).
DHCP Mode	Click on this drop-down list and select OFF/ON to disable/enable DHCP relay function.
ID Select	Click on this drop-down list and select the Relay Agent Information that is inserted to the forwarding packets. Options are: Circuit ID, Remote ID, or Both.

Circuit ID Type	Click on this drop-down list and select the type of Circuit ID. Options are: DEFAULT, CUSTOMER. DEFAULT means our system-defined default type (<DSLAM name>:<circuit number>:<vpi>:<vci>); CUSTOMER means the customer-defined type.
Remote ID Type	Click on this drop-down list and select the format of Remote ID. Options are: DEFAULT, Line ID (ADSL line identifier), Line Desc (description for the line), Line Phone (phone number), CUSTOMER. **DEFAULT** means our system default format, which is DSLAM name:port_id/bridge_id. **CUSTOMER** means the customer-defined format; customer can type in any word not exceeding 48 characters. For **Line ID**, the format is port_id/bridge_id:Port Identifier. For **Line Desc**, the format is port_id/bridge_id:Port Description. For **Line Phone**, the format is port_id/bridge_id:Port Phone Number. The Port Identifier, Description, and Phone Number are set in the ADSL line information table.
Set	Once you have changed the setting of any one of the parameters (DHCP Mode, ID Select, CKT Type, Remote Type, DLSAM Name, Service Name), remember to click on Set to submit the modification.
DSL Line ID Configuration	
	Click on these drop-down lists to select the bridge ports to be displayed (these bridge ports must have been created in previous web page).
Query	Click on this button to display table.
Modify	Click on this button to submit the modification of DSL line identify table.
Select Port	Bridge port index. Select the checkbox(s) corresponding to the circuit(s) of which you want to modify the setting.
Circuit ID	Type in the Circuit ID when CUSTOMER is selected for the CKT Type.
Remote ID	Type in the Remote ID when CUSTOMER is selected for the Remote Type.
Trusted	Click on this drop-down list and specify the circuit to be trusted (TRUE), or untrusted (FALSE; the relay agent will discard the DHCP packets from an unstrusted circuit).

4.2.7 IGMP

4.2.7.1 Protocol & Router Port

This option allows you to setup the IGMP protocol and router port. From the *Bridge* menu, click on *IGMP* and then *Protocol & Router Port.* The following page is displayed:



IGMP Router Port Setup

Label	Description
Modify	Click on this button to modify the IGMP configuration once you have set new values for the parameters.
IGMP Version	Select the IGMP version. Options are: IGMP OFF, IGMP V1, IGMP V2, and IGMP V3.
IGMP Mode	Select the IGMP mode. Options are: Snooping and Proxy.
IGMP ACL Mode	Disable or enable ACL mode. IGMP ACL profile will be effective only when ACL mode is enabled.
Deny No Alert	Enabled: the system will deny IGMP packets that have no router alert option in their IP header. Disabled: default value; the system will not care router alert option.
Max Groups Limit	Enabled: the system will limit the maximum active counter of IGMP groups can be joined (concurrently) for every bridge port. Disabled: the system will not limit the counter of IGMP groups can be joined for the bridge port.
Query 1~500(s)	The Query Interval is the interval between General Queries sent by the Querier. By varying this value, an administrator may tune the number of IGMP messages on the network; larger values cause IGMP Queries to be sent less often. Value range is 1 ~ 500. Default is 125 seconds.
URI 1~500(s)	The Unsolicited Report Interval is the time between repetitions of a host's initial report of membership in a group. Value range is 1 ~ 500. Default: 1

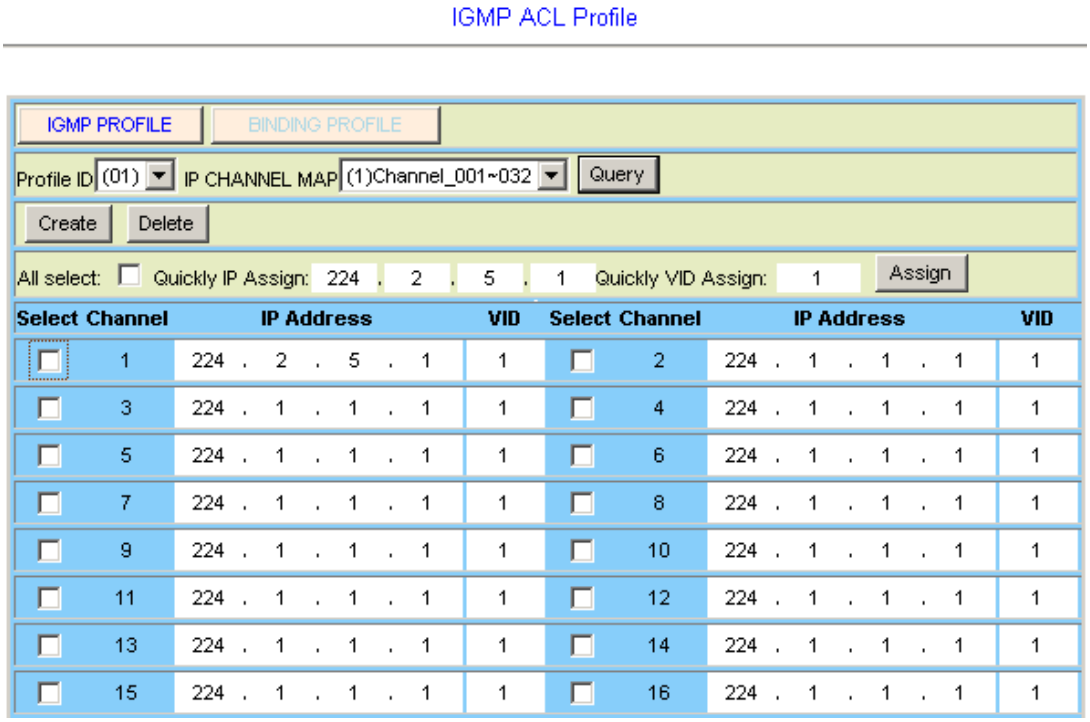
	second.
BC 1~500(s)	The Older Host Present Interval. It represents how long a host must wait after hearing a Version 1 Query before it may send any IGMPv2 messages. Default is 400 (sec).
MRT 1~500(s)	The burstiness of IGMP traffic is inversely proportional to the Max Response Time. A longer Max Response Time will spread Report messages over a longer interval. However, a longer Max Response Time in Group-Specific and Source-and-Group- Specific Queries extends the leave latency. (The leave latency is the time between when the last member stops listening to a source or group and when the traffic stops flowing.). Value range is 1 ~ 500. Default is 10.
LMQT 1~500(s)	The Last Member Query Interval is the Max Response Time used to calculate the Max Resp Code inserted into Group- Specific Queries sent in response to Leave Group messages. It is also the Max Response Time used in calculating the Max Resp Code for Group-and-Source-Specific Query messages. Value range is 1 ~ 500. Default is 1.
GMT 1~500(s)	Read-only value. The Group Membership Interval is the amount of time that must pass before a multicast router decides there are no more members of a group or a particular source on a network. This value MUST be ((the Robustness Variable) times (the Query Interval)) plus (one Query Response Interval).
Giga1/Giga2/LA	Click on this radio button to select GBE1/GBE2/LA as the IGMP router port.
Route Port VID	Type in the VID you want to setup/delete the router port for. Valid VID value is 1 ~ 4094.
Router IP	Type in IGMP router IP address. When working in IGMP proxy mode, DSLAM will send IGMP general query whose source IP address is 0.0.0.0. But PCs with Windows OS do not receive this kind of packets. So user can assign an IP address here for proxy mode IGMP general query packet reference.
Create	Click on this button to create a new entry.
Delete	To delete an entry, select the checkbox of the entry and then click on Delete button.

4.2.7.2 IGMP Profile

This option allows you to configure the IGMP ACL (Access Control List) profile. This profile defines the IGMP multicast channels, which are allowed to join for each ADSL port. That is, a multicast stream will be copied to an ADSL port only if that multicast stream is registered in the ACL profile that is bound to this ADSL port. The maximum number of IGMP multicast channels in an ACL profile is 256. Note that the same multicast channel can be existed concurrently in two or more ACL profiles.

The ACL profile will be referred to only when ACL mode is enabled in the IGMP Configuration page. From the *Bridge* menu, click on *IGMP* and then *IGMP Profile*. The following page is displayed:

IGMP Profile page = >



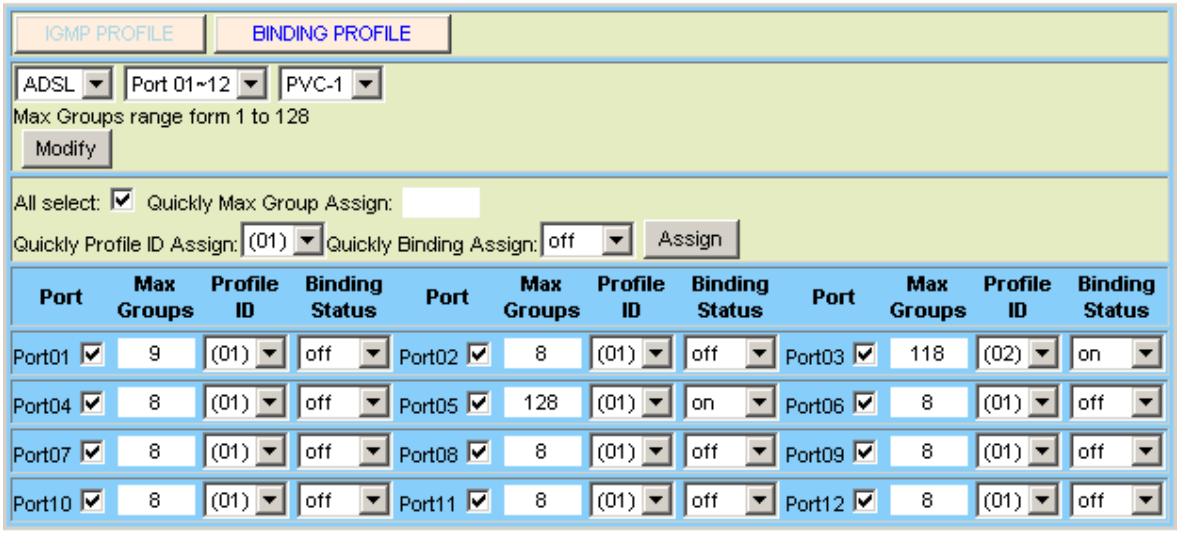
IGMP ACL Profile Configuration

Label	Description
Profile ID	Click on this drop-down list and specify the profile ID. Valid value is 01 ~ 48.
IP CHANNEL MAP	Click on this drop-down list and select the channel index range. Options are: Channel 001~032, Channel 033~064, …, Channel 225~256.
All select	Click on this checkbox to select all channels in this page at one time. This is convenient for quick value assignment.
Quickly IP Assign	Type the IGMP group IP address here for quick assignment. Click on **Assign** button to put the value into the table. Then you can modify parts of the IP addresses directly in the table.
Quickly VID Assign	Type the IGMP group IP address here for quick assignment. Click on **Assign** button to put the value into the table.
Assign	Click on this button to apply the parameter values you have just entered. But these values haven't been really saved in the database. You must click on Create to save the values. Once the setting has been saved, you cannot modify the values. You must delete the channel and then create again.

Select	Click on this checkbox to select the channel you want to create, delete, or assign values.
IP Address	You can type the IGMP group address here and then click on Create button to save. Valid values: 224.0.0.0 ~ 239.255.255.255. The range of addresses from 224.0.0.0 to 224.0.0.255 is reserved for the use of routing protocols and other low-level topology discovery or maintenance protocols.
Query	Click on this button to display current channels in the profile.
Create	Click on this button to create new channels (IGMP group address).
Delete	Click on this button to delete channel(s) (IGMP group address).

Binding Profile page = >

IGMP ACL Profile



IGMP ACL Profile Binding

Label	Description
ADSL Port 01~12 PVC-1	Click on these drop-down lists to select a line bridge port.
All select	Click on this checkbox to select all ports in this page at one time. This is convenient for quickly value assignment.
Quickly Max Group Assign	This field is for quick value assignment (assign the same value to all the ports in current page at one time). Type in the maximum IGMP groups can be joined simultaneously per line port, and then click on Assign to put the value into the table.
Quickly Profile ID Assign	Click on this drop-down list to select the profile ID you want to bind. This is for quick value assignment.
Quickly Binding Assign	Click on this drop-down list to select the binding action. This is for quick value assignment. Options are: off -- unbind the profile, on -- bind the profile, reset -- rebind the profile.
Assign	Click on this button to apply the parameter values you have just entered (or selected). But these values haven't been really saved in the database. You must click on Modify to save the values.
Modify	Click on this button to submit the modification.

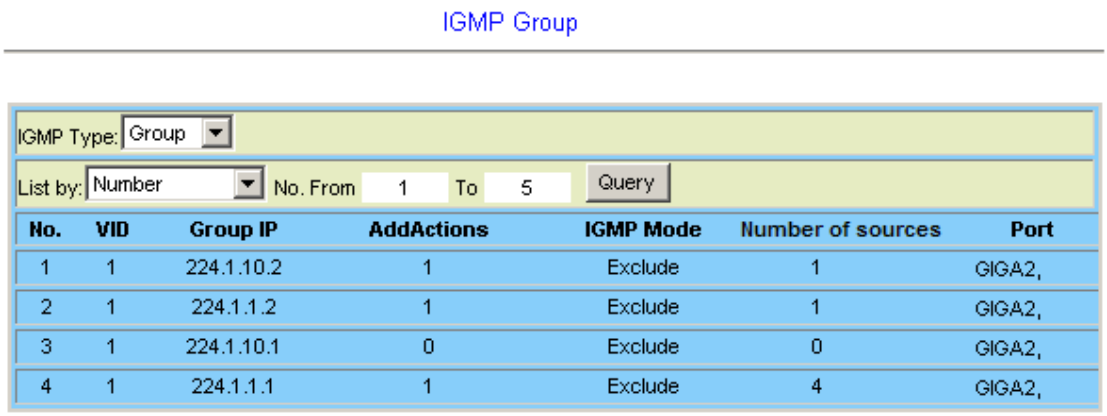
Port	Click on the checkbox to select the port you want to modify or assign values.
Max Groups	You can type in the maximum IGMP groups can be joined simultaneously to limit the concurrent multicast channels for a bridge port. This value is effective only when the limit maximum IGMP groups function is enabled.
Profile ID	You can select the profile ID you want to bind here.
Binding Status	You can select the binding action here.

4.2.7.3 IGMP Multicast

This option allows you to query the IGMP multicast status. From the *Bridge* menu, click on *IGMP* and then *IGMP Multicast*. The *IGMP Group* page is displayed. Click on the *IGMP Type* drop- down list and select Group or Source.

IGMP Type > Group: Click on *List by* drop-down list to select listing by entry number or listing by VID & IGMP group IP.

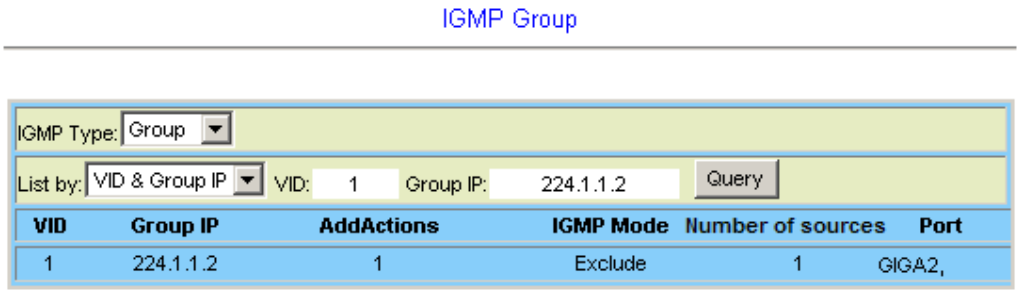
List by Number:



IGMP Group – List by Number

Label	Description
No. From…To…	Type in the entry number range in the table.
Query	Click on this button to display the table entries.

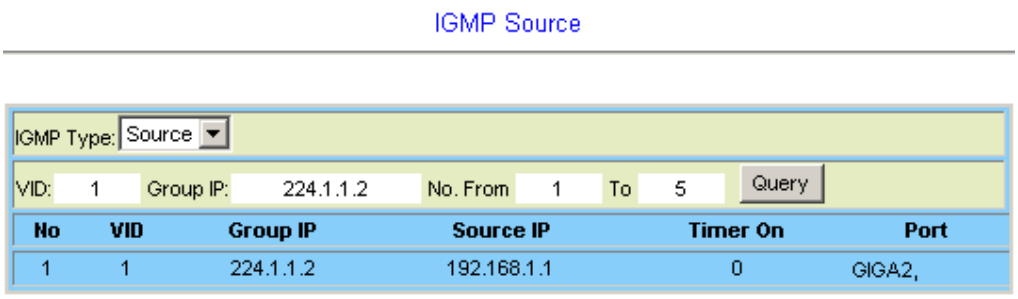
List by VID & Group IP:



IGMP Group – List by VID & Group IP

Label	Description
VID	Type in the VLAN ID (1~ 4094).
Group IP	Type in the IGMP group IP address.
Query	Click on this button to display the table entries.

IGMP Type > Source: This option allows you to query the *Source IP*, which is the IP address of the source that is joining a multicast group on an interface. This option is available only when IGMP version 3 is selected for the system's IGMP configuration.



IGMP Source

Label	Description
VID	Type in the VLAN ID (1~ 4094).
Group IP	Type in the IGMP group IP address.
No. From…To…	Type in the entry number range in the table.
Query	Click on this button to display the table entries.

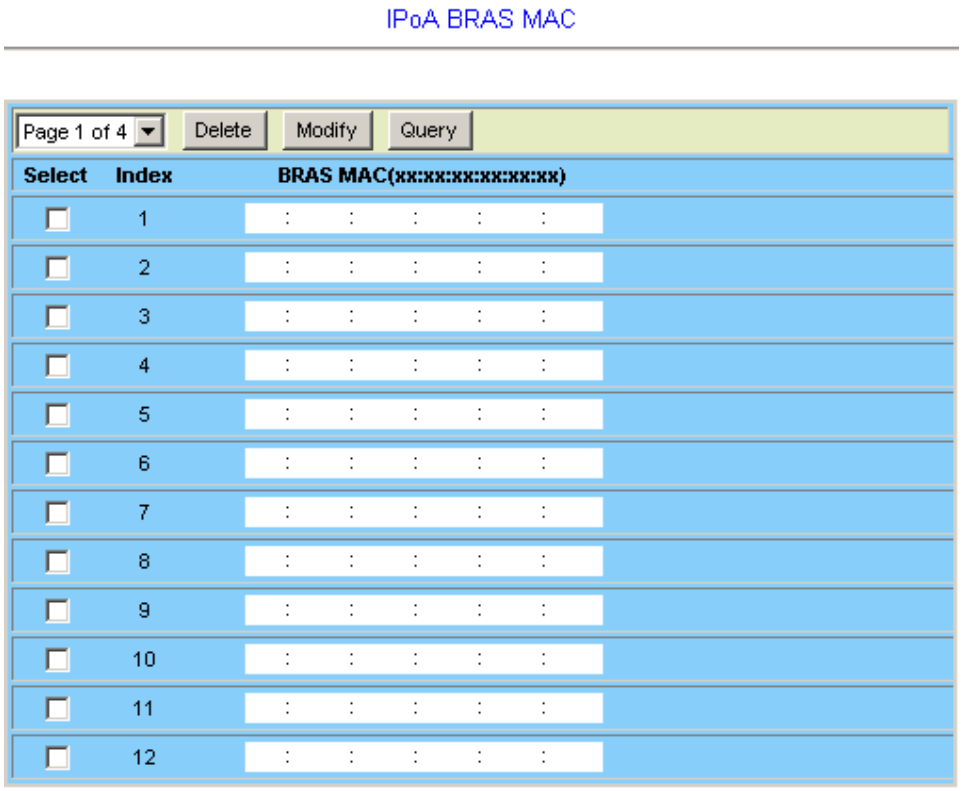
4.2.8 IPOA

4.2.8.1 BRAS MAC

The VX-1000HDX/MDX supports an IPOA/IPOE IWF (Interworking Function). This option allows you to setup the BRAS MAC address that is used by the IPOA/IPOE IWF. From the *Bridge* menu, click on *IPOA* and then *BRAS MAC*. The following page is displayed.

To add/modify a MAC:
Select a checkbox beside an index and type in BRAS MAC address, and then click on **Modify** button.

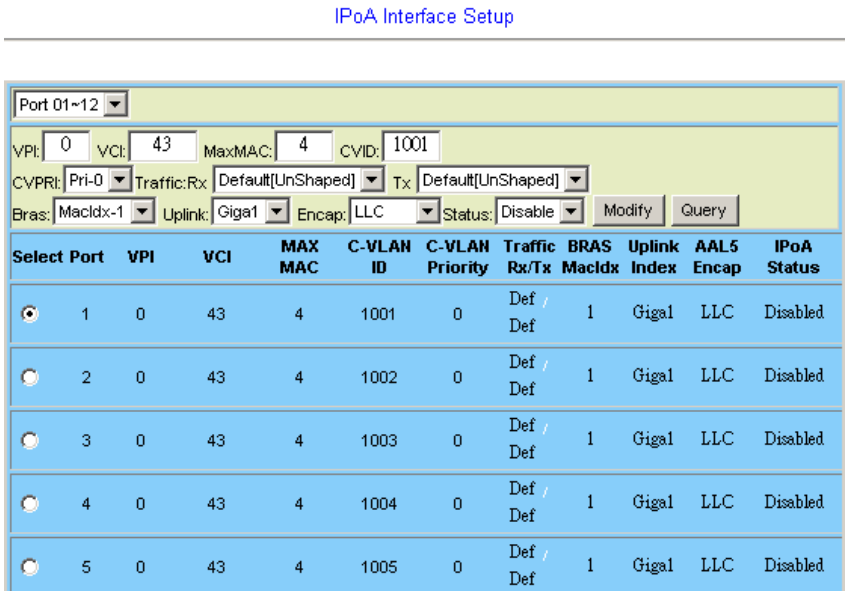
To delete a MAC:
Select a checkbox (checkboxes) beside the index and then click on **Delete** button.



4.2.8.2 Interface Setup

This option allows you to setup the interface for IPoA/IPoE IWF. From the *Bridge* menu, click on *IPOA* and then *Interface Setup*. The following page is displayed.

Click on the radio button to select a circuit, set values for the parameters, and then click on **Modify** button.



IPoA Interface Setup

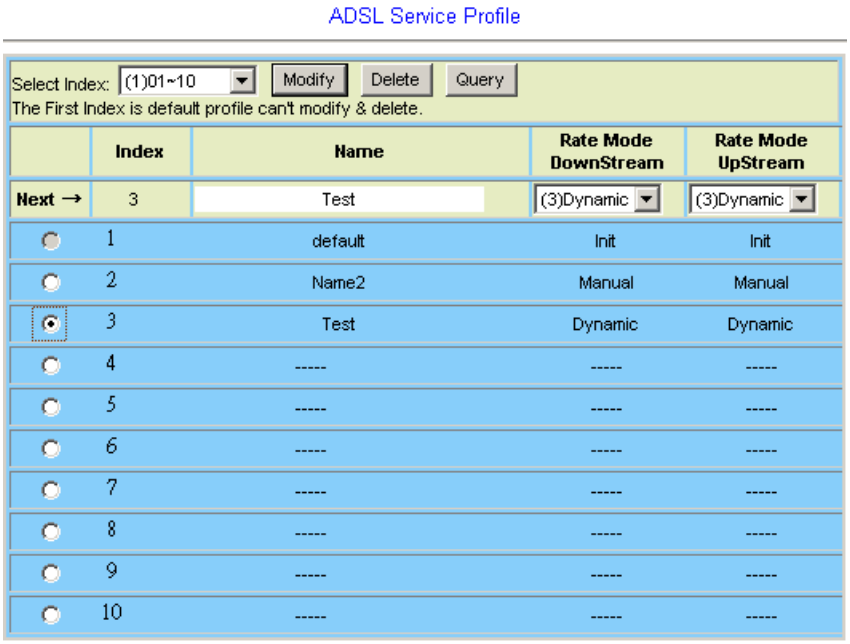
Label	Description
Port 01~12	Click on the drop-down list and select the line ports to be listed.
VPI	Type in the VPI. Value range is 0 ~ 255.
VCI	Type in the VCI. Value range is 21, 32 ~ 65535.
MaxMAC	Type in the maximum number of MAC addresses that can be learned by the bridge port (for GBE interface: 1 ~ 4096, for DSL interface: 1 ~ 128).
CVID	Type in the VID value of C-Tag (the innermost VLAN tag as defined in IEEE 802.1ad and having an EtherType value of 0x8100). The C-VID indicates the access loop.
CVPRI	Click on the drop-down list and select the VLAN priority level of C-Tag (Pri-0 ~ 7).
Traffic (Rx/Tx)	Click on the drop-down lists and select a traffic type for transmit and receive direction respectively. Available options are created in the ATM Traffic Descriptor page.
BRAS	Click on the drop-down list and select a BRAS MAC. Available options are created in the *IPoA BRAS MAC* page.
Uplink	Click on the drop-down list and select the uplink interface.
Encap	Select AAL5 Encapsulation Type: VCMUX/LLC
Status	Enable/Disable IPoA IWF.
Modify	Click on this button to submit the modification.
Query	Click on this button to query most recent data.

4.3 ADSL

4.3.1 Profile

4.3.1.1 Service Main Profile

This option allows you to configure the ADSL line service profile. From the *ADSL* menu, click on *Profile* and then *Service Profile(main)*. The following page is displayed.

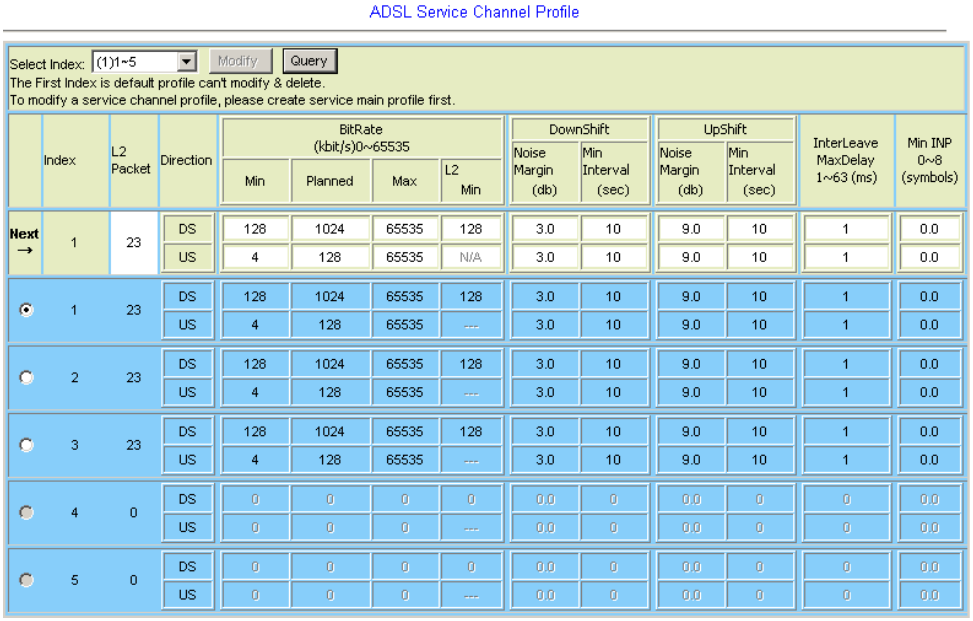


ADSL Line Service Profile setup

Label	Description
Select Index	Click on the drop-down list and select the range of profile index. Options are: 0~10, 11~20, …, 111~120.
Index	This field shows the profile index. Click on the radio button beside the profile index to select the profile you want to modify or delete. Note that profile 1 (default) cannot be modified or deleted.
Name	Type in the name of the profile.
Rate Mode Downstream	Click on the drop-down list and select the Downstream Rate Adaptive Mode. Valid options are: Manual – Rate changed manually Init – Rate automatically selected at start up only and does not change after that Dynamic – Rate automatically selected at initialization and is continuously adapted during operation (show time).
Rate Mode Upstream	Click on the drop-down list and select the Upstream Rate Adaptive Mode. Valid options are: Manual – Rate changed manually Init – Rate automatically selected at start up only and does not change after that Dynamic - Rate automatically selected at initialization and is continuously adapted during operation (show time).

4.3.1.2 Service Channel Profile

This option allows you to configure the ADSL service channel profile. From the *ADSL* menu, click on *Profile* and then *Service Profile(Channel)*. The following page is displayed.

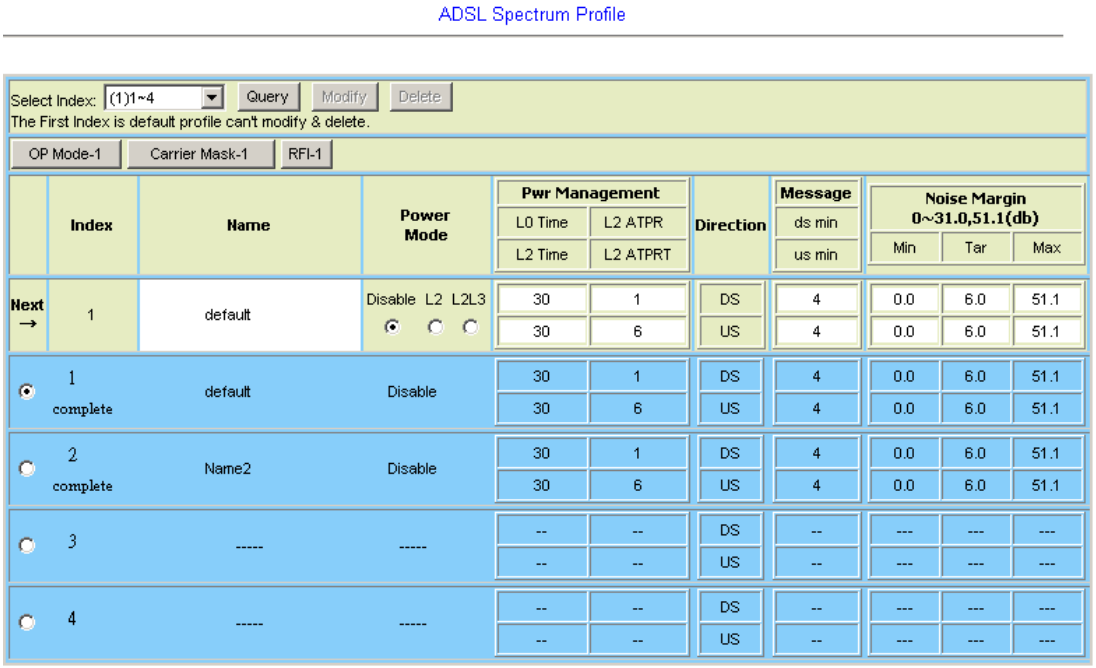


ADSL Service Channel Profile setup

Label	Description
Select Index	Click on the drop-down list and select the range of profile index. Options are: 1~5, 6~10, …, 116~120.
Index	This field shows the profile index. Click on the radio button beside the profile index to select the profile you want to modify. Note that profile 1 (default) cannot be modified.
L2 Packet	This is a threshold value that is the minimum packet size before the system leaving the L2 low power state. Valid value is 0~32.
Direction	DS: downstream. US: upstream.
BitRate	Min: Minimum bit rate during show time Planned: Planned bit rate during setup Max: Maximum bit rate during show time L2 Min: Minimum bit rate during L2 low power state
DownShift Noise Margin (dB)/ Min Interval (sec)	Decrease net data rate if Noise Margin is below the Downshift Noise Margin for DownShift Min Interval.
UpShift Noise Margin (dB)/Min Interval (sec)	Increase net data rate if Noise Margin is above the Upshift Noise Margin for Upshift Min Interval.
Interleaving MaxDelay	Maximum interleaving delay (1~63 ms)
IMP 0~8 (symbols)	Minimum impulse noise protection (0.0~8.0 dB)

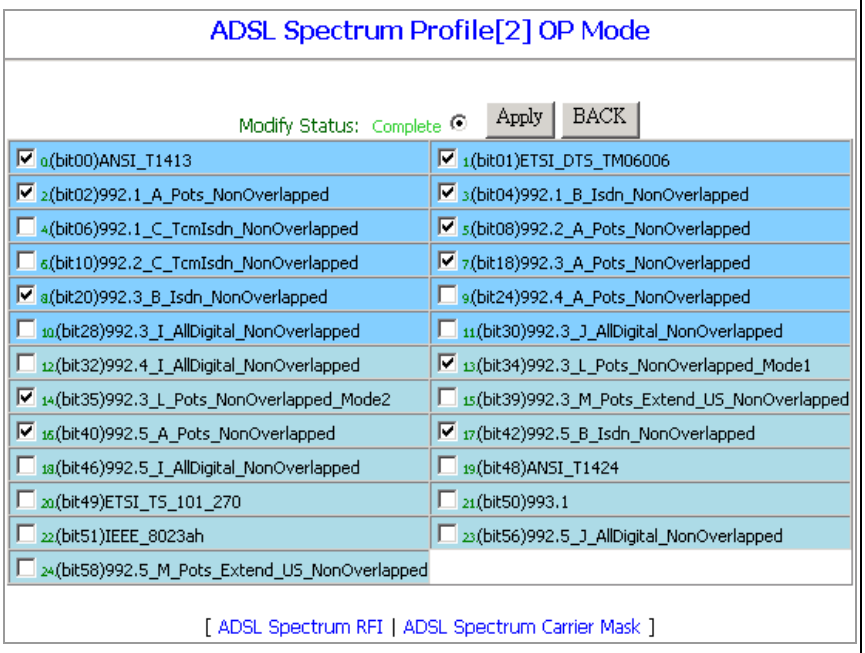
4.3.1.3 Spectrum Main Profile

This option allows you to configure the ADSL spectrum profile. From the *ADSL* menu, click on *Profile* and then *Spectrum Profile(main)*. The following page is displayed.

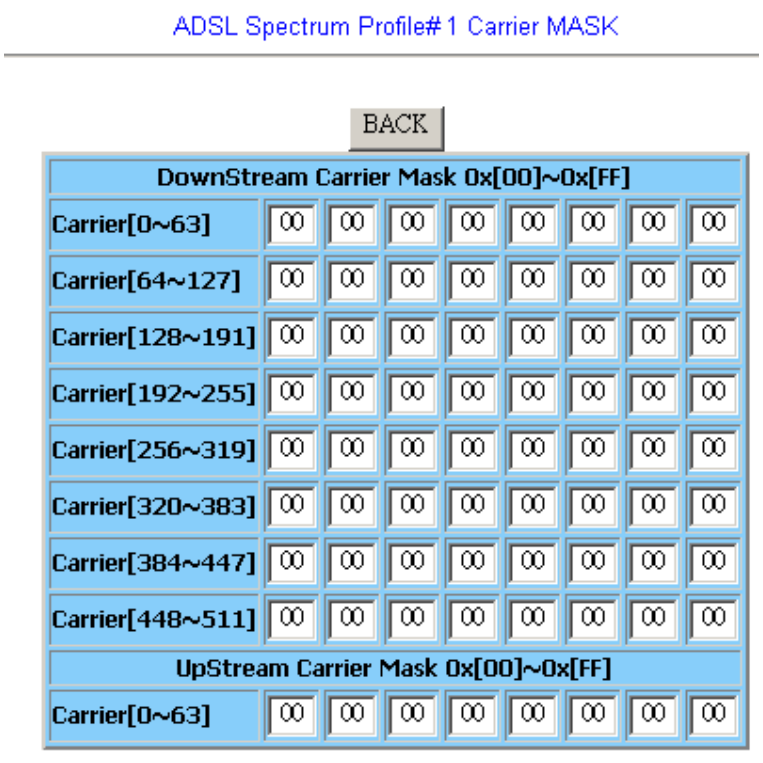


ADSL Spectrum Profile setup

Label	Description
Select Index	Click on the drop-down list and select the range of profile index. Options are: 1~4, 5~8, …, 117~120.
Index	This field shows the profile index. Click on the radio button beside the profile index to select the profile you want to modify or delete. Note that profile 1 (default) cannot be modified or deleted.
Name	Type in the name of the profile.
Power Mode	Click on the radio button to select allowed power management mode. Options are Disable (only L0 state allowed), L2 (L0 and L2 states allowed), L2L3 (L0, L2, and L3 states allowed).
L0 Time	Type in the minimum time (in seconds) between Exit from L2 low power state and the next Entry into the L2 low power state. Value range is 0 ~ 255.
L2 Time	Type in the minimum time (in seconds) between an Entry into L2 low power state and the first L2 low power trim request, and between two consecutive L2 power trim requests. Value range is 0 ~ 255.
L2 ATPR	Type in the maximum aggregate transmit power reduction (in dB) that is allowed at transition of L0 to L2 state or an L2 low power trim request. Value range is 0 ~ the value of L2 ATPRT (dB).
L2 ATPRT	Type in the total maximum aggregate transmit power reduction (in dB) that is allowed in the L2 state; the total reduction is the sum of all reductions of L2 Request (i.e., at transition of L0 to L2 state) and L2 power trims. Value range is 0 ~ 15 (dB).
Direction	DS: downstream. US: upstream.
Message	Type in the minimum rate of the message-based overhead that shall be maintained by the ATU in upstream/downstream direction. Value range is 4 ~ 28k bit/s.

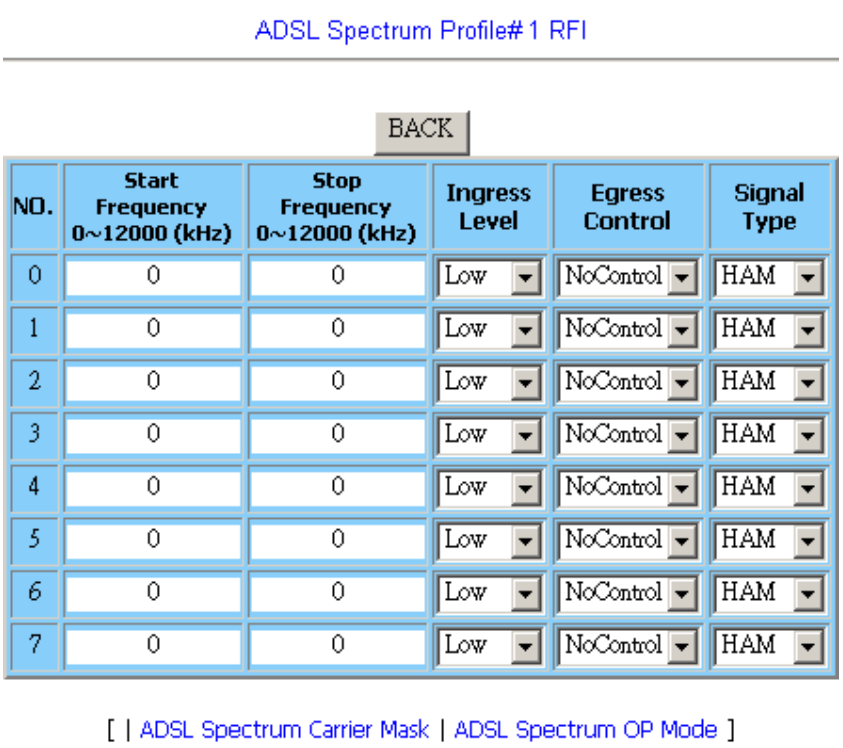
Noise Margin	Type in the Noise Margin values. Min: Minimum noise margin (0.0~31.0,51.1db, default 0.0) Tar: Target noise margin (0.0~31.0,51.1db, default 6.0) Max: Maximum noise margin (0.0~31.0,51.1db, default 51.1)
Modify	Click on this button to submit the modification
Delete	Click on this button to delete a profile
Query	Click on this button to display the profiles.
OP Mode-N	Click on this button to view/modify allowed ADSL modes of operation for the profile. The following page is displayed. An OP Mode is supported if the check box is selected. *Modify Status*: Complete – modems will re-train after you click on Apply button 

(To be continued)

Carrier Mask-N	Click on this button to view/modify the current downstream/upstream Carrier Mask parameters. Input Carrier bit value and then click **Apply**. *Modify Status*: Complete – modems will re-train after you click on Apply button 

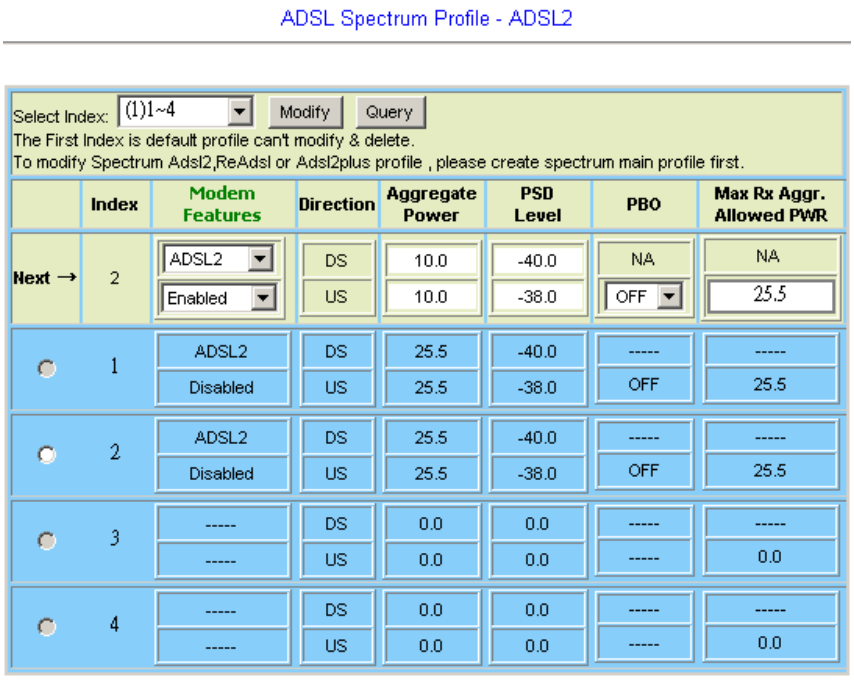
(To be continued)

RFI-N	Click on this button to view/modify Radio Frequency Interference (RFI) Bands data. Input the Start/Stop frequency, select the Ingress Level, Egress Control, Signal Type, and then click on the **Apply** button. *Modify Status*: Complete – modems will re-train after you click on Apply button



4.3.1.4 Spectrum ADSLx Profile

This option allows you to configure the ADSL2/2+/READSL spectrum profile. From the *ADSL* menu, click on *Profile* and then *Spectrum Profile(ADSLx)*. The following page is displayed.

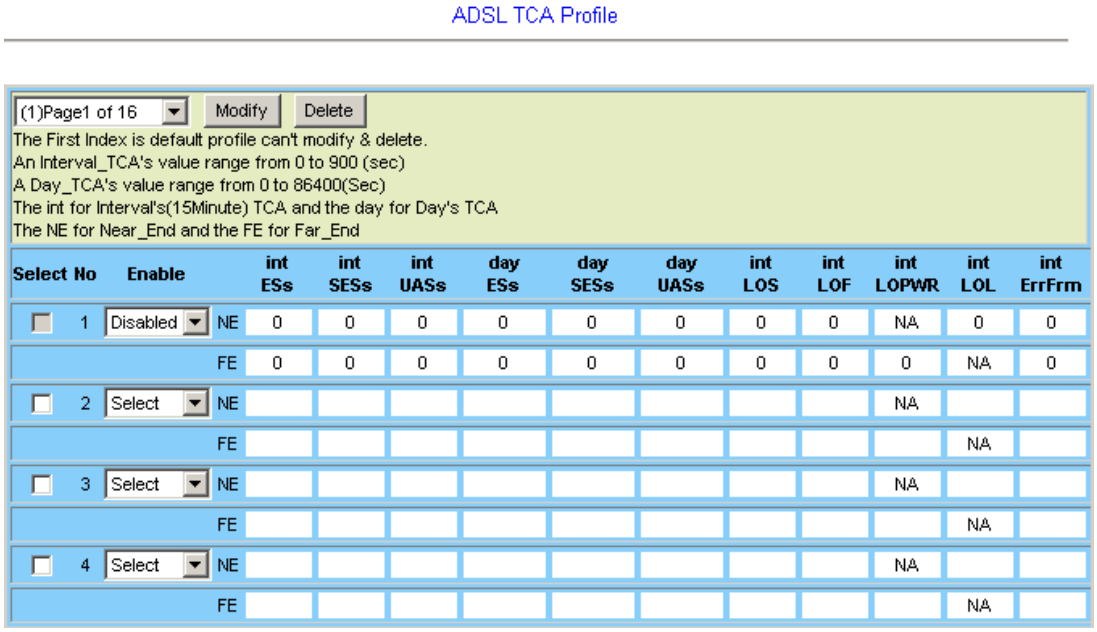


ADSL2/ReADSL/ADSL2+ Spectrum Profile

Label	Description
Select Index	Click on the drop-down list to select the range of profile index. Options are: 1~4, 5~8, …, 117~120.
Index	This field shows the profile index.
Modem Features	Select ADSL2/ReADSL2/ADSL2+ and Enable/Disable special modem functions for better performance.
Direction	DS: downstream. US: upstream
Aggregate Power	Maximum nominal aggregate transmit power (0~25.5dB)
PSD Level	Maximum PSD level. Valid values are: ADSL2: -60 ~ -40 dB/Hz DS, -60 ~ -38 dB/Hz US ReADSL2: -60 ~ -37 dB/Hz DS, -60 ~ -32.9 dB/Hz US ADSL2+: -60 ~ -40 dB/Hz DS, -60 ~ -38 dB/Hz US
PSD Shape	Only for ADSL2+. Valid options are: Standard/CA100/CA110/CA120/CA130/CA140/CA150/ CA160CA170/CA180/CA190/CA200/CA210/CA220/CA230/ CA240/CA250/CA260/CA270/CA280
PBO	Power backoff operation mode (OFF/ON).
Max Rx Aggr. Allowed PWR	Maximum aggregate receive power over a set of subcarriers. It ranges from –25.5 to +25.5 dBm, with 0.1 dB steps.

4.3.1.5 TCA Profile

This option allows you to setup the PM counter threshold for TCA (threshold crossing alert). From the *ADSL* menu, click on *Profile* and then *TCA Profile*. The following page is displayed.



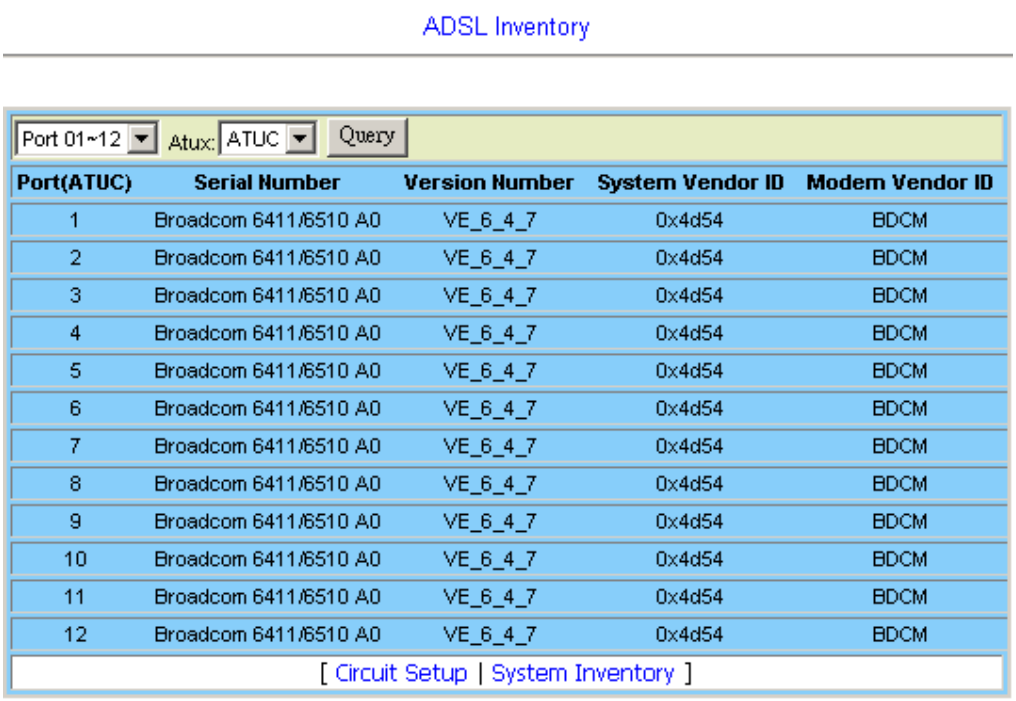
ADSL TCA Threshold setup

Label	Description
(1)Page1 of 16	Click on this drop-down list to select the page to be displayed.
Modify	Once you have typed in new threshold values, click on this button to submit the modification.
Delete	Click on this button to delete a selected profile (or profiles).
Select	Click on the checkbox to select the profile you want to modify or delete.
Enable	To issue TCA when the PM statistics exceed thresholds, this profile must be enabled.
int/day ESs-NE/FE	Interval/Day Errored Seconds – near end/far end
int/day SESs-NE/FE	Interval/Day Severely Errored Seconds – near end/far end
int/day UASs-NE/FE	Interval/Day Unavailable Seconds – near end/far end
int LOS-NE/FE	Interval Loss of Signal – near end/far end
int LOF-NE/FE	Interval Loss of Frame – near end/far end
int LOPWR-FE	Interval Loss of Power – far end
int LOL-NE	Interval Loss of Link – near end
int ErrFrm-NE/FE	Interval Error Frame – near end/far end

4.3.2 Data & Inventory

4.3.2.1 Inventory

This option allows you to view the inventory of the ATUC and ATUR. From the *ADSL* menu, click on *Data & Inventory* and then *Inventory*. The following page is displayed.

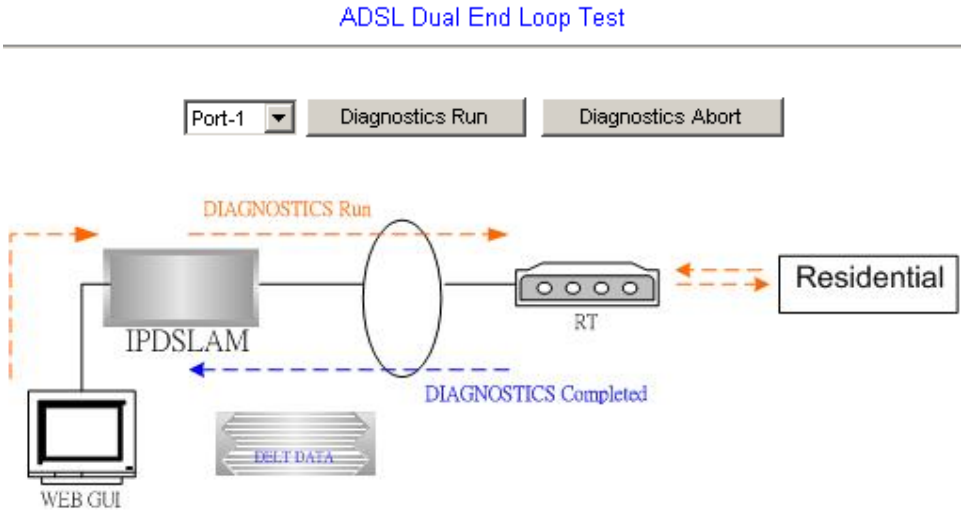


ADSL Inventory

Label	Description
Port 01~12	Click on this drop-down list and select the ports to be displayed.
Atux	Select ATUC or ATUR inventory to be displayed.
Query	To view inventory, click on this button once you have selected the port and ATUx.

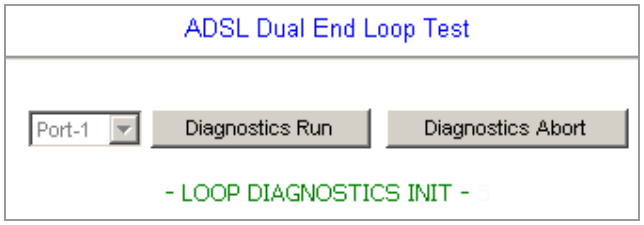
4.3.2.2 Loop Test

This option allows you to do the ADSL Dual End Loop Test. From the *ADSL* menu, click on *Data & Inventory* and then *Loop Test*. The following page is displayed.



Click on the drop-down list and select the line port you want to test. Then click on **Diagnostics Run** to start a DELT. If you want to discontinue the test or make the loop go back to the normal state when the test has finished, just click on **Diagnostics Abort**.

Test in progress: Click on **Diagnostics Run** and then the following page is displayed.



Test completed: When the test has completed successfully, test result is displayed as follows.

ADSL Dual End Loop Test

Port-2 | Diagnostics Run | Diagnostics Abort

Dual Port		Attainable BitRate		Loop Attn		Signal Attn		SNR Margin		Actual Tx Power FE	
		DS(kbps)	US(kbps)	DS(db)	US(db)	DS(db)	US(db)	DS(db)	US(db)	DS(db)	US(db)
○	2	23039	1242	1.0	0.7	1.0	0.0	7.9	6.0	-3.4	12.3

LOOP DIAGNOSTICS COMPLETED...

Carrier Type: TSS ◉ SNR ○ QLN ○ HLIN ○ HLOG ○

The TSS formula: tss=value*(1/32768).The Transmit Spectrum Shaping for the Downstream direction as exchanged at init.(Near-END)

Carrier	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0~31	3275	3275	3275	3275	3275	3275	3275	3275	3275	3275	3275	3275	3275	3275	3275	3275	3275	3275	3275	3492	3723	3967	4265	4552	4857	5183	5545	5916	6310	6747	7193	7666
32~63	8236	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768
64~95	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768
96~127	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768
128~159	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768
160~191	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768
192~223	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768
224~255	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768
256~287	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768
288~319	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768
320~351	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768
352~383	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768
384~415	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768
416~447	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768
448~479	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768
480~511	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768

The TSS formula: tss=value*(1/32768).The Transmit Spectrum Shaping for the Upstream direction as exchanged at init.(Far-END)

Carrier	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0~31	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768
32~63	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768	32768

Carrier Type: TSS ○ SNR ◉ QLN ○ HLIN ○ HLOG ○

The SNR formula :snr=-32+(value/2) (dB).The Signal to Noise Ratio per carrier over the Upstream passband.(Near-END)

Carrier	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0~31	255	255	255	255	255	255	255	122	132	143	149	158	162	164	166	169	171	174	175	175	174	175	175	175	174	171	166	164	160	153	142	133
32~63	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255

The SNR formula :snr=-32+(value/2) (dB).The Signal to Noise Ratio per carrier over the Downstream passband.(Far-END)

Carrier	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0~31	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
32~63	64	142	144	148	151	153	157	160	162	163	166	169	170	172	173	174	176	177	178	179	179	180	180	181	182	181	182	183	183	183	183	183
64~95	181	172	184	184	184	184	184	183	184	184	183	182	184	184	183	183	183	183	183	183	183	180	163	175	182	182	183	182	182	182	183	182
96~127	182	182	182	182	181	182	181	181	181	181	181	181	181	181	181	181	180	181	181	180	181	180	180	180	180	180	180	180	180	180	179	179
128~159	179	179	178	179	179	179	177	176	179	179	179	179	178	179	178	179	179	178	178	179	178	178	179	178	178	178	179	178	178	178	178	178
160~191	178	177	178	178	178	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	176	177	176	176	177	175	176	176	176	176	176	176
192~223	175	176	176	176	175	176	175	175	175	175	175	175	174	173	174	175	174	174	174	174	174	174	174	174	174	175	174	174	174	174	173	174
224~255	174	174	174	174	174	174	175	174	174	174	174	175	174	173	173	172	174	173	172	174	173	174	174	174	174	174	174	174	174	174	174	170
256~287	171	171	174	174	174	173	173	173	173	172	172	172	171	172	172	172	171	172	171	169	170	170	169	171	171	170	170	170	172	170	170	171
288~319	170	171	170	171	170	171	170	172	172	172	172	172	171	172	171	173	171	172	171	172	172	172	171	171	172	171	172	171	171	172	169	171
320~351	170	170	170	170	169	168	168	168	169	168	167	167	167	166	168	166	166	165	166	164	164	164	163	162	162	163	161	161	161	161	162	163
352~383	162	162	161	161	161	163	161	161	161	164	165	163	162	165	165	163	164	164	163	165	164	164	166	166	167	166	165	165	165	164	167	165
384~415	167	164	165	163	163	164	164	162	164	161	161	162	161	162	161	161	159	165	164	163	161	161	163	162	161	160	160	161	155	155	157	153
416~447	152	159	157	160	160	158	160	160	160	159	161	161	160	162	156	157	158	158	161	157	159	159	159	159	159	160	160	161	158	162	160	161
448~479	160	159	161	162	159	161	161	160	160	159	160	158	159	158	156	159	157	156	161	160	161	160	158	160	153	155	151	156	157	157	152	155
480~511	157	154	152	154	150	151	149	150	151	153	150	151	149	151	149	148	149	149	144	149	143	148	144	150	147	139	145	139	135	128	126	64

Carrier Type: TSS ○ SNR ○ QLN ◉ HLIN ○ HLOG ○

The QLN formula: qln=-23-(value/2) (dBm/Hz).The Quiet Line Noise measurement per carrier over the Upstream passband. (Near-END)

Carrier	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0~31	255	195	190	191	190	190	194	179	170	166	175	173	173	172	174	180	176	180	174	181	178	178	185	182	182	183	182	181	184	186	188	191
32~63	194	193	192	191	190	190	189	191	190	191	189	190	191	190	192	193	190	189	189	191	190	190	190	190	195	190	191	192	194	191	191	191

The QLN formula: qln=-23-(value/2) (dBm/Hz).The Quiet Line Noise measurement per carrier over the Downstream passband.(Far-END)

Carrier	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0~31	146	230	230	228	220	224	226	226	226	226	224	226	226	226	226	214	216	224	222	208	210	222	224	222	220	220	218	216	214	212	210	208
32~63	206	204	200	196	198	188	192	192	192	192	190	190	190	186	190	188	190	188	188	186	186	188	186	186	186	188	186	186	186	186	186	184
64~95	182	174	184	184	184	186	184	184	184	184	184	182	182	182	182	182	182	182	182	182	182	180	162	174	180	180	180	180	180	180	180	180
96~127	182	180	180	180	180	182	180	178	182	180	178	178	180	180	178	178	178	178	178	178	178	178	178	178	180	178	180	178	178	178	178	178
128~159	178	178	178	178	178	178	176	176	176	178	178	178	178	178	178	176	178	178	178	178	178	178	178	176	178	176	178	178	178	176	178	178
160~191	176	176	178	176	176	178	178	176	178	176	178	176	176	176	178	176	178	176	176	176	176	176	178	176	176	176	176	178	176	178	176	176
192~223	176	176	176	176	174	176	176	176	176	176	176	176	176	174	178	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	178
224~255	176	176	178	176	176	174	178	176	178	176	176	176	176	174	178	176	176	178	176	178	178	178	176	176	178	178	176	178	178	178	176	178
256~287	178	178	180	180	180	178	180	180	182	180	182	180	180	180	182	180	182	180	182	180	180	180	180	180	180	180	182	180	180	182	180	182
288~319	182	182	180	182	182	182	182	182	180	182	180	182	182	182	182	182	182	182	182	182	182	182	184	180	182	180	182	180	180	182	182	180
320~351	182	182	182	180	182	182	182	182	182	180	182	184	180	182	182	182	182	182	182	182	182	182	180	182	184	182	182	180	182	182	182	182
352~383	182	182	182	182	182	182	180	182	180	182	180	182	182	182	182	182	180	182	182	182	182	182	182	182	182	184	182	182	182	184	182	182

HlinUpstream Scale=48854

HlinDownstream Scale=38568

Carrier Type: TSS ○ SNR ○ QLN ○ HLIN ◉ HLOG ○

The HLIN formula: hlin=(hlin.scale/32768)*(hlin.real+j*hlin.imag)/32768.Complex values in linear scale for each carrier over the Upstream passband.(

Carrier	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
0~31	=-1730 =1729	=3 =3	=5 =-1	=-8 =-1	=-8 =-1	=-4 =-19	=-1622 =-1422	=-8244 =3535	=20661 =19138	=16623 =-22422	=-14752 =-25303	=-32101 =1128	=-15907 =29838	=16456 =29648	=32765 =4604	=-23160 =-21524	=-833 =-29757	=-20699 =-18509	=-25552 =1596	=-15921 =17544	=245 =21619	=13220 =14460	=17595 =2269	=13545 =-8565	=4690 =-13720	=-4165 =-12447
32~63	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768	=-32768 =-32768

The HLIN formula: hlin=(hlin.scale/32768)*(hlin.real+j*hlin.imag)/32768.Complex values in linear scale for each carrier over the Downstream passband

Carrier	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
0~31	=0 =1	=230 =-230	=165 =-165	=165 =-165	=100 =100	=-100 =100	=-100 =-100	=100 =-100	=68 =68	=68 =-68	=68 =68	=-100 =100	=-68 =-68	=-68 =-68	=68 =68	=-68 =-68	=68 =68	=35 =-35	=-32 =32	=64 =-123	=-58 =58	=162 =58	=-178 =-126	=22 =256	=224 =-353	=-454 =246
32~63	=-2158 =-1827	=970 =3321	=1253 =-4038	=-3925 =3249	=6012 =-714	=-6369 =-3110	=4239 =6973	=243 =-9242	=-5830 =8499	=10499 =-4288	=-12067 =-2438	=9265 =9427	=-2421 =-13856	=-6314 =13456	=13696 =-7665	=-16213 =-1844	=12463 =11541	=-3236 =-17333	=-8116 =16323	=16985 =-8340	=-19034 =-3801	=13083 =15102	=-1025 =-20491	=-12200 =17174	=20741 =-6022	=-20436 =-8463
64~95	=11476 =-22845	=-23832 =10469	=25465 =7291	=-15135 =-22271	=-2704 =27228	=19839 =-19430	=-28095 =2155	=23199 =16667	=-7077 =-28049	=-12885 =26319	=27150 =-11891	=-28702 =-8587	=16446 =25407	=4015 =-30293	=-22939 =20595	=31072 =-736	=-24261 =-19826	=5522 =31085	=16177 =-27319	=-30283 =10161	=29721 =12184	=-14573 =-28780	=-7918 =31422	=26683 =-18512	=-32426 =-3496	=22219 =24004
96~127	=-30156 =13320	=31390 =9989	=-16998 =-28285	=-6126 =32344	=26001 =-20125	=-32754 =-2236	=22946 =23407	=-1548 =-32702	=-20579 =25358	=32166 =-5200	=-27390 =-17547	=8681 =31257	=14365 =-29020	=-29984 =11927	=30215 =11158	=-14953 =-28426	=-7901 =31030	=26566 =-17716	=-31500 =-4652	=20196 =24481	=1444 =-31617	=-22228 =22378	=31396 =-1652	=-24293 =-19787	=4652 =30871	=17268 =-25910
128~159	=15138 =26364	=6596 =-29508	=-24780 =17300	=29874 =3921	=-19303 =-22985	=-1292 =29900	=21099 =-21092	=-29738 =1279	=22670 =19079	=-3769 =-29293	=-16982 =24046	=28695 =-6171	=-25225 =-14849	=8489 =27923	=12628 =-26173	=-26952 =10668	=26958 =10401	=-12742 =-25838	=-8116 =27556	=24582 =-14706	=-27932 =-5869	=16505 =23193	=3616 =-28153	=-21696 =18177	=28179 =1395	=-19686 =-20102
160~191	=26683 =-7035	=-24277 =-12947	=8970 =25936	=11044 =-25069	=-29109 =10827	=25699 =9119	=-12586 =-24085	=-7142 =26140	=22972 =-14258	=-26478 =-5174	=15816 =21764	=3227 =-26534	=-20452 =17277	=26683 =1275	=-18621 =-19056	=642 =26588	=17602 =-19836	=-26332 =2529	=20949 =16073	=-4389 =-25978	=-14466 =21933	=25475 =-6171	=-22793 =-12826	=7944 =24965	=11138 =-23540	=-24160 =9609
192~223	=4184 =-25280	=-20280 =15596	=25390 =2451	=-16881 =-19069	=-678 =25416	=17810 =-18063	=-25306 =1061	=19180 =16485	=-2743 =-25079	=-15076 =20173	=24757 =-4428	=-21073 =-13638	=6074 =24313	=12157 =-21855	=-23770 =7655	=22566 =10612	=-9197 =-23124	=-9077 =23121	=22384 =-10697	=-23605 =-7476	=12115 =21556	=5879 =-23975	=-20644 =13482	=24238 =4246	=-14763 =-19657	=-2642 =24394
224~255	=-19147 =-14946	=3756 =23975	=13632 =-20021	=-23598 =5288	=20806 =12255	=-6794 =-23163	=-10859 =21514	=22605 =-8262	=-22105 =-9431	=9687 =21959	=7940 =-22628	=-21238 =11064	=23030 =6454	=-12382 =-20440	=-4950 =23339	=19543 =-13641	=-23566 =-3418	=14836 =18583	=1895 =-23673	=-17557 =15972	=23702 =360	=-17001 =-16469	=1139 =23611	=15287 =-17982	=-23452 =2636	=18968 =14102
256~287	=-21819 =8424	=21631 =8827	=-9739 =-21219	=-7389 =22108	=20530 =-11031	=-22475 =-5976	=12288 =19735	=4535 =-22780	=-18868 =13485	=22988 =3074	=-14615 =-17953	=-1636 =23063	=16969 =-15683	=-23085 =-185	=16687 =15907	=-1272 =-23011	=-14794 =17618	=22832 =-2704	=-18475 =-13645	=4129 =22556	=12427 =-19264	=-22228 =5522	=19953 =11174	=-6882 =-21771	=-9869 =20582	=21271 =-8226
288~319	=-4444 =22189	=18401 =-13096	=-22371 =-3051	=14200 =17511	=1645 =-22469	=-16570 =15219	=22469 =249	=-16200 =-15550	=1149 =22400	=14482 =-17086	=-22254 =2535	=17923 =13372	=-3879 =-21995	=-12213 =18660	=21644 =-5256	=-19329 =-10992	=6548 =21248	=9745 =-19946	=-20732 =7837	=20475 =8496	=-9073 =-20177	=-7181 =20901	=19527 =-10294	=-21274 =-5872	=11460 =18816	=-4538 =-21524

Carrier Type: TSS ○ SNR ○ QLN ○ HLIN ○ HLOG ◉

The HLOG formula: 6-(value/10)(dB). Real values in dB for each carrier over the Upstream passband.(Near-END)

Carrier	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0~31	251	1023	776	776	776	673	262	138	39	39	35	27	23	23	25	28	34	40	46	53	61	70	78	87	95	105	113	122	130	137	144	152
32~63	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023

The HLOG formula: 6-(value/10)(dB).Real values in dB for each carrier over the Downstream passband.(Far-END)

Carrier	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0~31	850	450	480	480	520	520	520	520	560	560	560	520	560	560	560	560	560	610	620	520	570	510	490	470	430	410	390	370	340	320	300	280
32~63	260	250	230	210	200	180	170	160	150	140	140	130	120	120	120	110	110	100	100	100	100	90	90	90	90	80	80	80	80	80	80	70
64~95	70	70	70	70	70	60	60	60	60	60	60	60	60	60	60	60	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
96~127	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	60	60	60	60	60	60	60
128~159	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	70
160~191	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
192~223	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	80	80	80	80	80	80	80	80	80	80	80	80	80
224~255	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
256~287	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
288~319	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	90	90	90	90	90	90	90	90	90	90	90
320~351	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
352~383	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
384~415	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	100	100	100	100	100	100
416~447	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	110	110	110	110	110	110	110	110	110	110	110	110	110	120
448~479	120	120	120	120	120	120	120	120	120	130	130	130	130	130	130	130	130	140	140	140	140	140	140	150	150	150	150	150	150	160	160	160
480~511	160	170	170	170	170	180	180	180	180	190	190	190	190	200	200	200	210	210	210	220	220	230	230	230	240	240	240	240	250	250	250	250

4.3.2.3 Carrier Data

This option allows you to view the ADSL line carrier data. From the *ADSL* menu, click on *Data & Inventory* and then *Carrier Data*. The following page is displayed.

Select the line port (1 ~ 48) and carrier type (LOAD or GAIN). Then click on **Query** button. Note that if the line port is still in loop testing status, you cannot query the carrier data.

ADSL Carrier Data

Port: 2 Type:LOAD GAIN Query

The LOAD formula: load=value*(1/256).The bit LOAD distribution over Downstream passband.(Near-END)

Carrier	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0~31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32~63	0	6	6	7	8	8	9	9	10	10	11	10	11	11	12	12	12	12	13	13	13	13	14	13	14	14	14	14	14	15	14	15
64~95	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	15	15	15	15	15	15	15
96~127	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
128~159	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
160~191	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
192~223	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
224~255	14	15	15	15	2	15	15	15	15	15	15	14	15	15	15	15	14	15	15	15	15	14	15	15	15	15	15	15	15	15	14	15
256~287	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
288~319	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
320~351	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14
352~383	15	15	15	15	15	15	14	15	15	15	15	15	14	15	15	15	14	15	15	15	14	15	15	15	14	15	14	15	15	14	15	
384~415	0	0	15	14	15	15	14	15	14	15	14	15	14	15	14	15	14	15	14	15	14	15	14	15	14	15	14	14	15	14	15	14
416~447	15	14	14	15	14	15	14	14	15	14	15	14	14	15	14	14	15	14	14	14	15	14	14	15	14	14	14	14	15	14	14	14
448~479	0	0	15	14	14	14	14	14	14	14	14	14	14	14	13	14	14	13	14	14	13	14	13	13	14	13	13	13	14	13	13	
480~511	13	13	13	13	12	13	12	13	12	12	12	12	12	12	12	11	11	11	10	11	10	10	9	9	9	7	7	6	6	3	2	0

The LOAD formula: load=value*(1/256).The bit load distribution over Upstream passband.(Far-END)

Carrier	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0~31	0	0	0	0	0	0	0	8	9	11	11	12	13	13	14	14	14	14	15	15	15	15	15	15	15	14	14	13	12	11	11	9
32~63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Port: 2 Type:LOAD GAIN Query

The GAIN formula: gain=value*(1/512).The GAIN allocation over the Downstream passband.(Near-END)

Carrier	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0~31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32~63	0	482	394	469	541	455	541	469	573	496	625	394	496	455	590	541	482	442	590	541	482	455	625	406	541	511	482	469	455	608	418	573
64~95	573	482	526	496	482	482	469	455	430	442	442	442	418	418	418	406	418	406	406	406	406	442	469	496	394	406	394	394	394	406	406	406
96~127	406	406	406	394	406	406	418	406	406	406	406	418	418	418	430	430	430	430	430	430	430	442	442	442	442	455	455	455	455	469	469	482
128~159	469	482	482	482	482	482	511	526	482	496	482	496	496	496	482	496	482	496	482	482	469	482	469	482	482	469	469	455	469	455	455	455
160~191	455	455	455	455	455	455	455	455	455	469	455	469	455	455	482	469	455	469	455	455	455	469	482	469	469	469	469	469	455	469	455	482
192~223	469	469	482	482	482	482	482	496	496	482	496	496	496	496	496	511	496	511	496	496	496	496	511	511	496	496	526	526	496	526	526	511
224~255	372	511	526	526	511	511	526	526	526	526	541	372	541	541	526	541	383	541	541	557	526	383	526	541	526	511	526	511	526	526	372	608
256~287	394	482	482	496	482	482	482	482	496	496	496	496	496	526	496	496	496	496	482	482	482	482	482	482	469	469	469	482	469	469	482	482
288~319	455	469	482	482	482	482	482	482	482	496	496	496	482	496	482	482	496	496	496	496	496	496	496	496	496	496	496	496	496	496	496	496
320~351	496	496	511	496	496	511	496	496	496	511	511	511	511	526	511	496	511	511	526	511	526	511	511	511	511	511	511	526	526	526	526	383
352~383	526	526	526	541	526	526	383	526	526	526	526	541	526	383	541	541	541	394	541	541	557	383	557	557	541	406	557	406	557	573	406	573
384~415	557	406	573	406	573	573	418	573	406	590	406	590	418	573	418	590	406	590	418	590	418	608	430	608	430	590	430	430	590	430	608	430
416~447	608	430	430	608	430	608	430	430	608	442	625	442	442	625	442	442	625	455	442	455	625	455	455	644	455	455	455	469	644	469	469	482
448~479	482	482	681	496	496	496	511	496	496	496	526	511	541	526	541	383	541	557	406	557	590	418	590	430	430	625	442	455	455	662	482	482
480~511	496	511	526	541	394	590	418	608	455	469	482	511	541	557	573	442	469	541	418	625	496	557	418	496	541	430	496	469	590	482	394	0

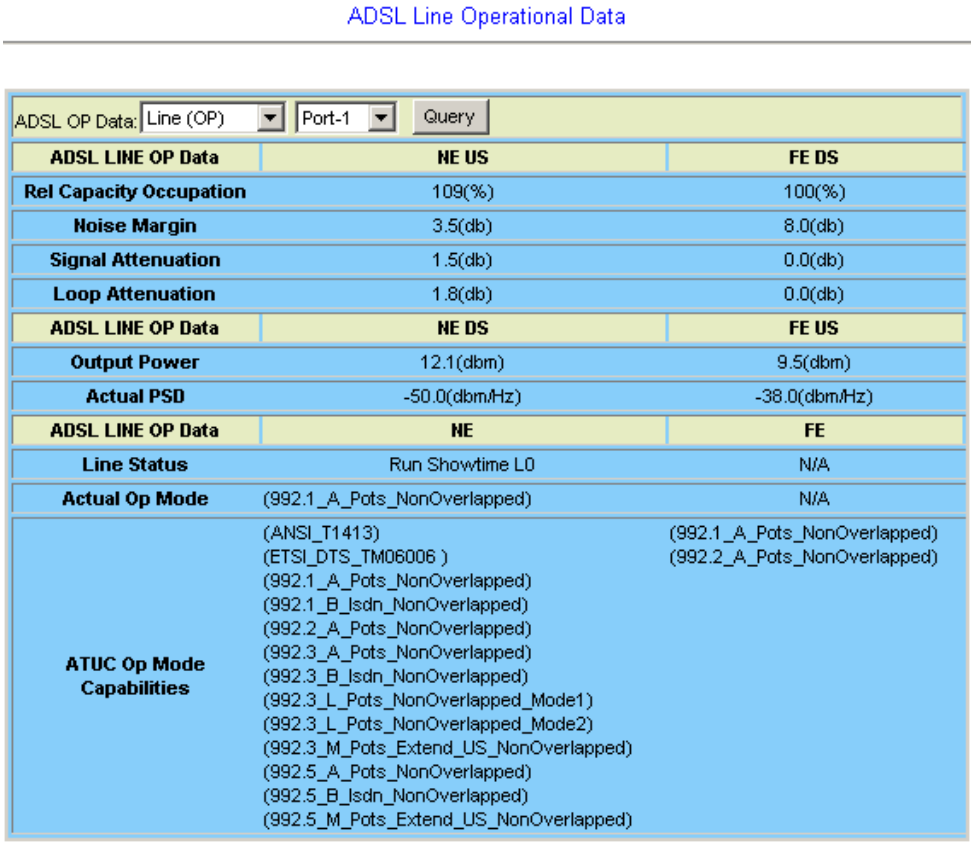
The GAIN formula: gain=value*(1/512).The gain allocation over the Upstream passband.(Far-END)

Carrier	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0~31	0	0	0	0	0	0	0	556	444	494	467	465	524	505	556	540	466	431	524	479	453	458	466	481	528	433	527	447	448	513	556	592
32~63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

4.3.2.4 OP Data

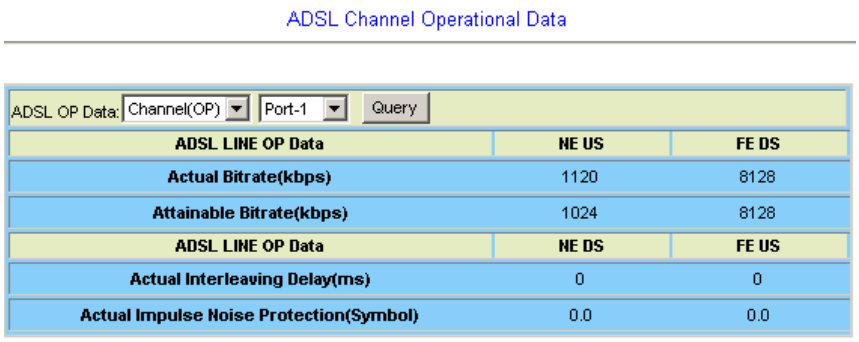
This option allows you to view the ADSL line/channel operational data and carrier data. From the *ADSL* menu, click on *Data & Inventory* and then *OP Data*. The following page is displayed.

Line Operational Data: Click on *ADSL OP Data* drop-down list and select the item *Line (OP)*. Then select the line port (1 ~ 48). Click on **Query** button.



ADSL LINE OP Data	NE US	FE DS
Rel Capacity Occupation	109(%)	100(%)
Noise Margin	3.5(db)	8.0(db)
Signal Attenuation	1.5(db)	0.0(db)
Loop Attenuation	1.8(db)	0.0(db)
ADSL LINE OP Data	**NE DS**	**FE US**
Output Power	12.1(dbm)	9.5(dbm)
Actual PSD	-50.0(dbm/Hz)	-38.0(dbm/Hz)
ADSL LINE OP Data	**NE**	**FE**
Line Status	Run Showtime L0	N/A
Actual Op Mode	(992.1_A_Pots_NonOverlapped)	N/A
ATUC Op Mode Capabilities	(ANSI_T1413) (ETSI_DTS_TM06006) (992.1_A_Pots_NonOverlapped) (992.1_B_Isdn_NonOverlapped) (992.2_A_Pots_NonOverlapped) (992.3_A_Pots_NonOverlapped) (992.3_B_Isdn_NonOverlapped) (992.3_L_Pots_NonOverlapped_Mode1) (992.3_L_Pots_NonOverlapped_Mode2) (992.3_M_Pots_Extend_US_NonOverlapped) (992.5_A_Pots_NonOverlapped) (992.5_B_Isdn_NonOverlapped) (992.5_M_Pots_Extend_US_NonOverlapped)	(992.1_A_Pots_NonOverlapped) (992.2_A_Pots_NonOverlapped)

Channel Operational Data: Click on *ADSL OP Data* drop-down list and select the item *Channel (OP)*. Then select the port (1~48). Click on **Query** button. The following page is displayed.

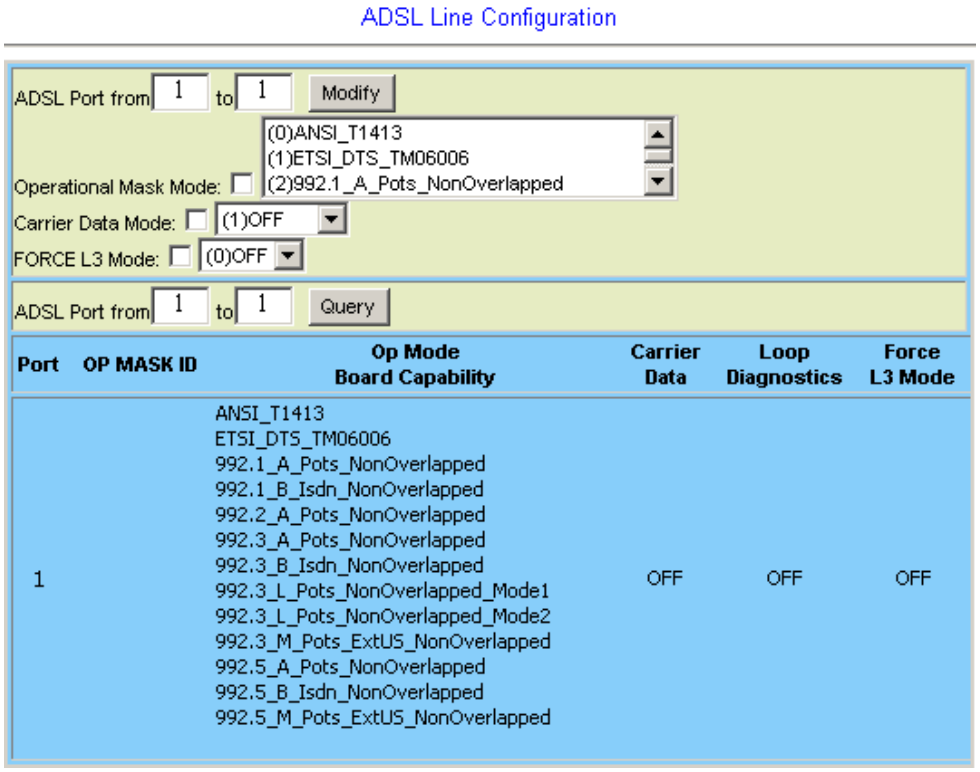


ADSL LINE OP Data	NE US	FE DS
Actual Bitrate(kbps)	1120	8128
Attainable Bitrate(kbps)	1024	8128
ADSL LINE OP Data	**NE DS**	**FE US**
Actual Interleaving Delay(ms)	0	0
Actual Impulse Noise Protection(Symbol)	0.0	0.0

4.3.3 Line Config & Info

4.3.3.1 Line Configuration

This option allows you to setup the ADSL line configuration. From the *ADSL* menu, click on *Line Config & Info* and then *Line Configuration*. The following page is displayed.

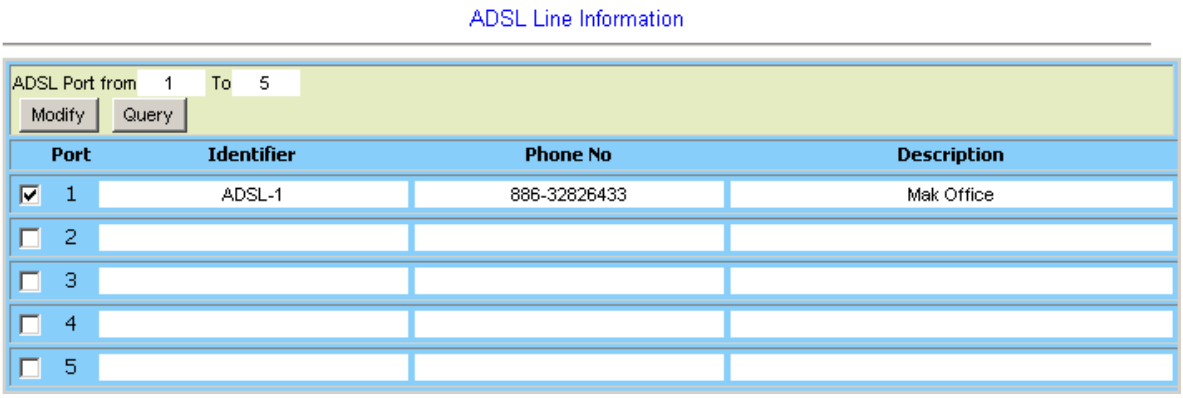


ADSL Line Configuration

Label	Description
ADSL Port From…To…	Type in the line port range. Valid number: 1 ~ 48.
Operational Mask Mode	Select the Operational Mode(s) to be masked. Select the modes in the block by using mouse and Shift or Ctrl key. Select the check box and then click on **Modify** button.
Carrier Data Mode	Click on this drop-down list and select the carrier data mode. Select the check box and then click on **Modify** button. OFF - Carrier data won't vary during show time. ON - Carrier data collection is active. The carrier data will be refreshed during show time. ON INIT - The ADSL facility is re-initialized and carrier data collection is active (will be refreshed).
FORCE L3 Mode	Click on this drop-down list and select ON to force the ADSL port to enter power management L3 mode (Idle state). Select the check box and then click on **Modify** button.
Modify	Click on this button to submit modification.
Query	Click on this button to display current line configuration.

4.3.3.2 Line Information

This option allows you to setup the ADSL line information. From the *ADSL* menu, click on *Line Config & Info* and then *Line Information*. The following page is displayed.



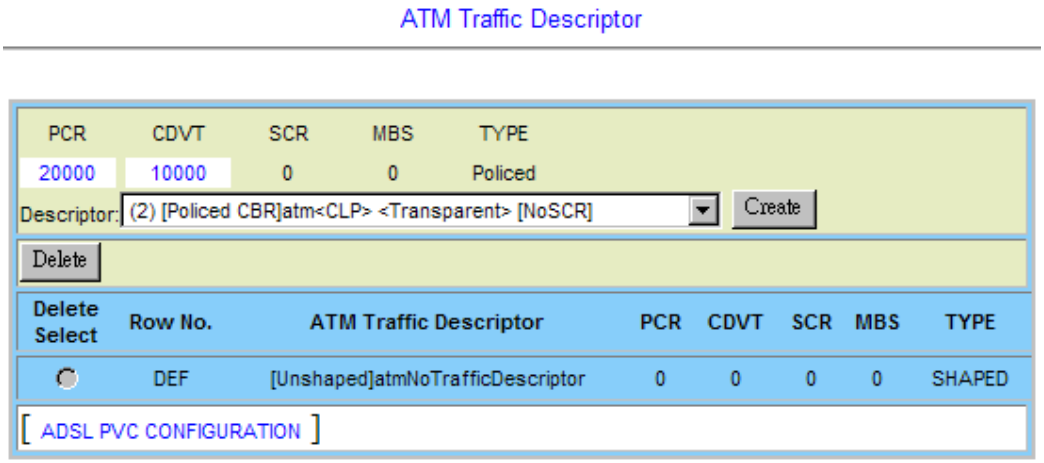
ADSL Line Information

Label	Description
ADSL Port From…To…	Type in the line port range. Valid number: 1~48.
Modify	Click on this button to submit the modification once you have entered new value for the ADSL line information. Note that to modify an entry, you must select the checkbox on the leftmost column before you click on Modify.
Query	Once you have typed in the port number range, click on this button to display line information of these ports.
Identifier	Type in the ADSL line identifier. Up to 63 characters is allowed.
Phone No	Type in the phone number. Up to 63 characters is allowed.
Description	Type in any comment of this line. Up to 63 characters is allowed.

4.4 Traffic

4.4.1 ATM Traffic Descriptor

This option allows you to modify the traffic table. From the *Traffic* menu, click on *ATM Traffic Descriptor*. The following page is displayed:



ATM Traffic Descriptor Setup

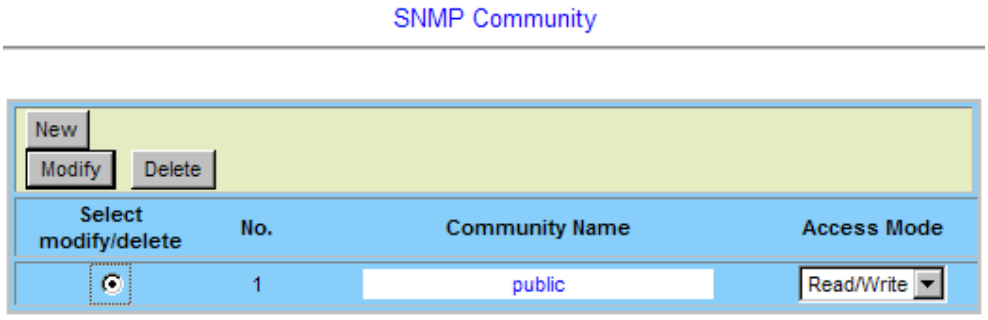
Label	Description
PCR	PCR stands for Peak Cell Rate (cells/second).
CDVT	CDVT stands for Cell Delay Variation Tolerance (microseconds).
SCR	SCR stands for Sustained Cell Rate (cells/second).
MBS	MBS stands for Maximum Burst Size (cells).
TYPE	This field will show Shaped or Policed depending on the descriptor type you select.
Descriptor	Click on this drop-down list and select a descriptor type. After you select a descriptor type, the corresponding parameters (which are configurable) will be displayed on the top. Valid descriptor types are: **[Unshaped] atmNoTrafficDescriptor**: This identifies no ATM traffic descriptor type. This traffic descriptor type can be used for best effort traffic. **[Policed CBR] atmCLPTransparentNoScr** / **[Shaped CBR] atmCLPTransparentNoScr**: This traffic descriptor type is for the CLP- transparent model and no Sustained Cell Rate. This traffic descriptor type is applicable to connections following the CBR.1 conformance definition. Connections specifying this traffic descriptor type will be rejected at UNI 3.0 or UNI 3.1 interfaces. For a similar traffic descriptor type that can be accepted at UNI 3.0 and UNI 3.1 interfaces, see "atmNoClpNoScr". **[Policed VBR1] atmNoCLPScrCdvt**: This traffic descriptor type is for no CLP with Sustained Cell Rate and CDVT. This traffic descriptor type is applicable to VBR connections following the UNI 3.0/3.1 conformance definition for PCR CLP=0+1 and SCR CLP=0+1. These VBR connections differ from VBR.1

	connections in that the CLR objective applies only to the CLP=0 cell flow. **[Policed VBR2] atmCLPNoTaggingScrCdvt /** **[Shaped VBRNRT] atmCLPNoTaggingScrCdvt**: This traffic descriptor type is for CLP with Sustained Cell Rate and CDVT and no tagging. This traffic descriptor type is applicable to connections following the VBR.2 conformance definition. **[Policed VBR3] atmCLPTaggingScrCdvt**: This traffic descriptor type is for CLP with tagging and Sustained Cell Rate and CDVT. This traffic descriptor type is applicable to connections following the VBR.3 conformance definition. **[Policed UBR1] atmNoCLPNoScrCdvt**: This traffic descriptor type is for no CLP with CDVT and no Sustained Cell Rate. This traffic descriptor type is applicable to CBR connections following the UNI 3.0/3.1 conformance definition for PCR CLP=0+1. These CBR connections differ from CBR.1 connections in that the CLR objective applies only to the CLP=0 cell flow. This traffic descriptor type is also applicable to connections following the UBR.1 conformance definition. **[Policed UBR2] atmNoCLPTaggingNoScr**: This traffic descriptor type is for no CLP with tagging and no Sustained Cell Rate. This traffic descriptor type is applicable to connections following the UBR.2 conformance definition. **[Shaped UBR] atmNoCLPNoScr**: This traffic descriptor type is for no CLP and no Sustained Cell Rate **[Shaped VBR] atmCLPTransparent**: This traffic descriptor type is for the CLP- transparent model with Sustained Cell Rate. This traffic descriptor type is applicable to connections following the VBR.1 conformance definition. Connections specifying this traffic descriptor type will be rejected at UNI 3.0 or UNI 3.1 interfaces. For a similar traffic descriptor type that can be accepted at UNI 3.0 and UNI 3.1 interfaces, see "atmNoClpScr".
Create	Click on this button to create a new traffic descriptor.
Delete	When you want to delete a traffic descriptor, click on the radio button beside the row number to select the traffic descriptor and then click on the Delete button. Note that the default profile cannot be deleted.

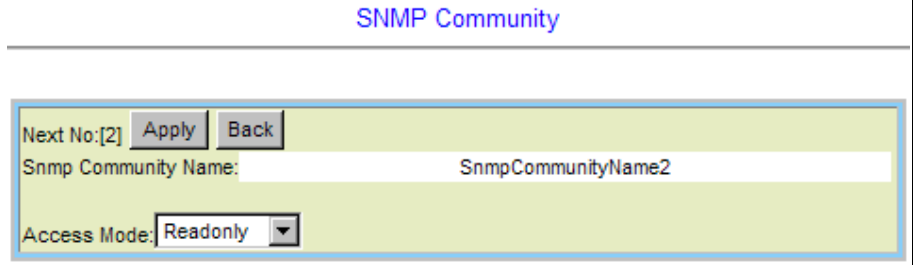
4.5 SNMP

4.5.1 SNMP Community

This option allows you to configure the SNMP community that is the group that VX-1000HDX/MDX and management stations running SNMP belong to. It helps define where information is sent. The community name is used to identify the group and serve as form of authentication. From the *SNMP* menu, click on *SNMP Community*. The following page is displayed.

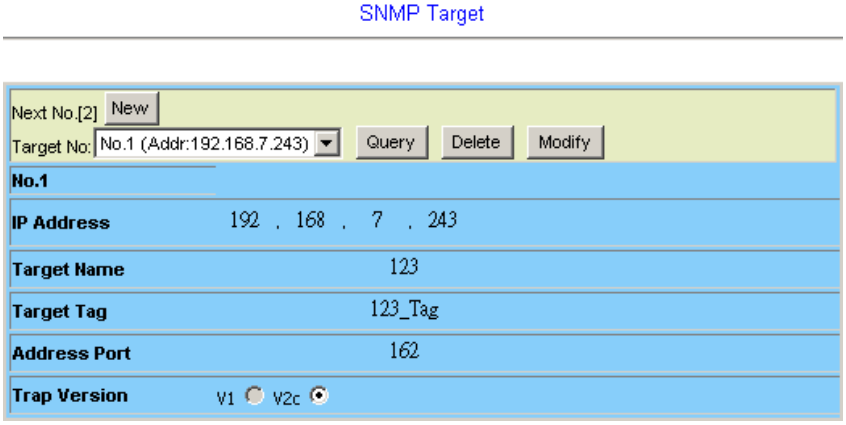


SNMP Community Setup

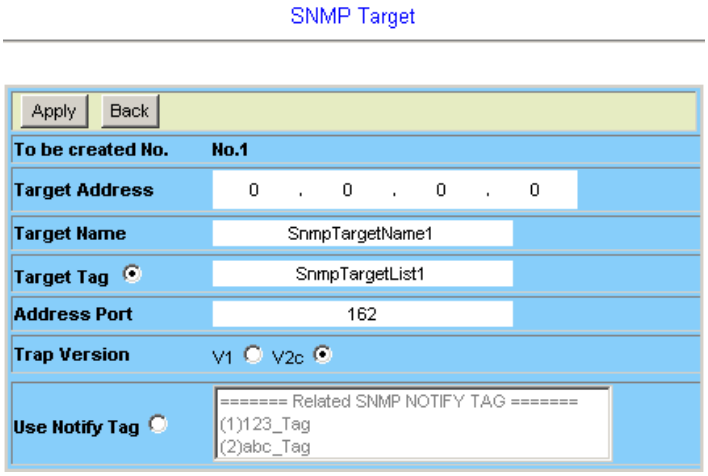
Label	Description
New	Click on this button to create a new SNMP community. After you click on New, the following page is displayed. Type in the name of the SNMP community (up to 63 characters; note that community names beginning with a digital number are not allowed) and select the access mode (Read only or Read/Write). Then click on **Apply** button. 
Access Mode	Select the SNMP community access mode: Read only or Read/Write.
Modify	Click on this button to modify the community name.
Delete	Select an index and then click on this button to delete a community.

4.5.2 SNMP Target

This option allows you to configure the SNMP target to control where the SNMP traps (notifications) are sent. Traps are used to report an alarm or other asynchronous event about a managed DSLAM system. From the *SNMP* menu, click on *SNMP Target*. The following page is displayed.

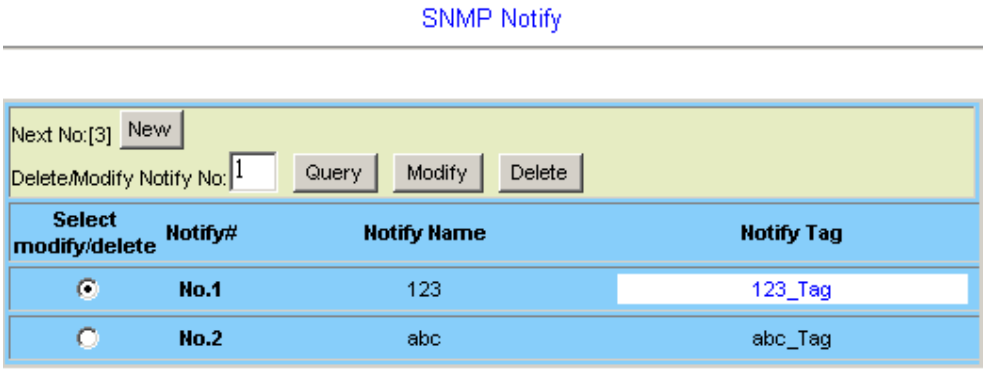


SNMP Community Setup

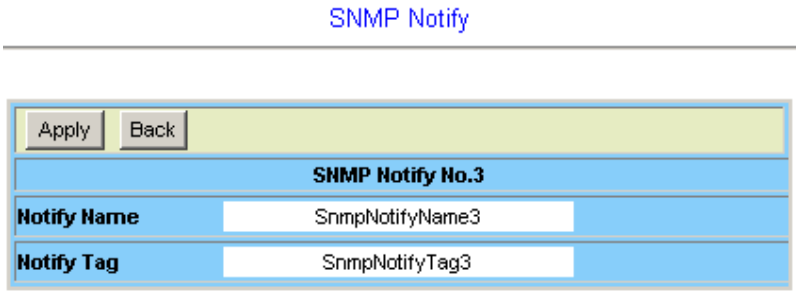
Label	Description
New	Click on this button to create a new SNMP target. After you click on New, the following page is displayed. Type in the IP Address, Name and Tag of the SNMP target, Address Port (Usually SNMP uses UDP port 161 for general SNMP messages and UDP port 162 for SNMP trap messages), and select Trap Version (V1 or V2c). Then click on Apply button. The Target Tag can be the same with a Notify Tag; you can select the Notify Tag in the **Use Notify Tag** field. The Notify Tag is created in the SNMP Notify table. When the Target Tag is the same with a Notify Tag, the SNMP notification with that Notify Tag is sent to the Target with the same tag. 
Target No.	Click on this drop-down list and select the SNMP target number.
Query	Select the target number and then click on this button to retrieve the information.
Delete	Select the target number and then click on this button to delete a target.
Modify	Select the target number and then click on this button to modify the target setting.

4.5.3 SNMP Notify

This option allows you to setup the SNMP Notification (In SNMPv1, asynchronous event reports are called traps while they are called notifications in later versions of SNMP). From the *SNMP* menu, click on *SNMP Notify.* The following page is displayed.



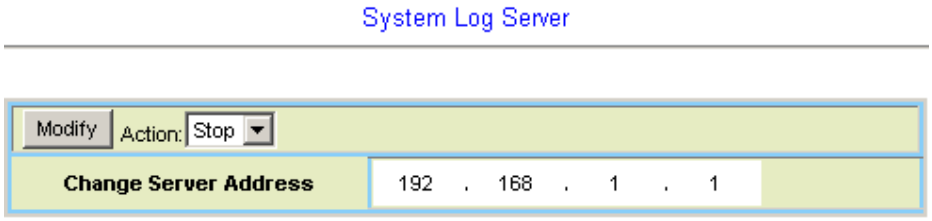
SNMP Community Setup

Label	Description
Notify No.	This field shows the Notify number you select.
New	Click on this button to create a new SNMP Notify. After you click on New, the following page is displayed. Type in the name and tag of the SNMP Notify and click on **Apply** button. By specifying the Notify tag, you can bind the Notify name to the SNMP target address table. When the Notify tag is the same with the Target Tag in a SNMP target table, the notification is sent to the corresponding Target address. 
Delete	Select a row and then click on this button to delete a Notify.
Modify	Select the row and type in new notify tag and then click on this button to submit the modification.

4.6 Maintenance

4.6.1 SYS Log Server

This option allows you to configure the IP address of the SYS Log server which listens for incoming Syslog messages. From the *Maintenance* menu, click on *SYS Log Server*. The following page is displayed.

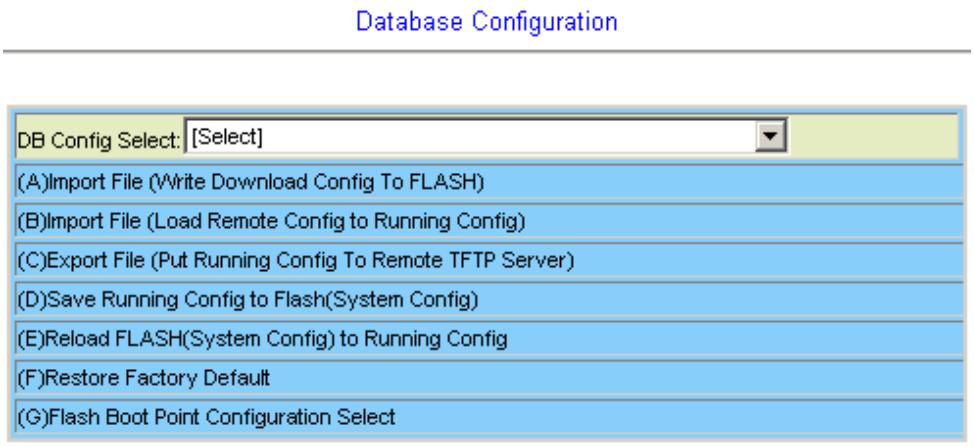


SYS Log Server Setup

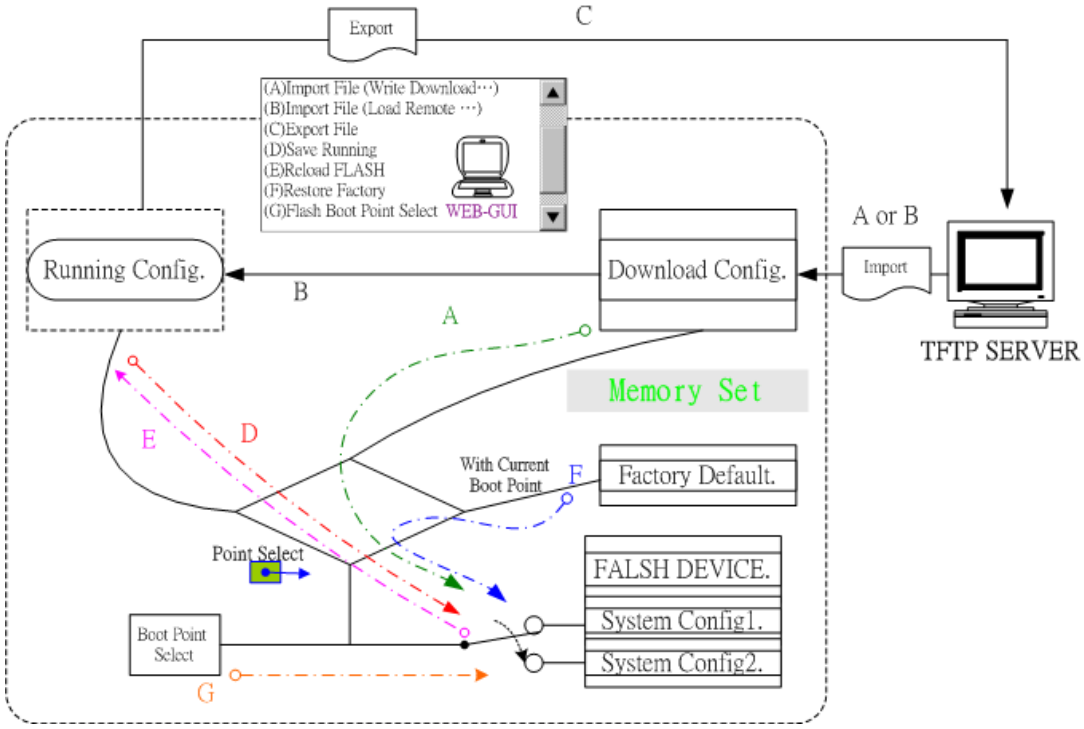
Label	Description
Current Server IP	This field shows the IP address of current Sys Log server.
Change Server Address	Type in the new IP address of Sys Log server. The server must be a remote host.
Modify	To change SYS Log server address, click on this button once you have type in a new server IP address.
Action	Click on this drop-down list and select **Start** to start sending the Syslog messages to the server or **Stop** to stop sending the Syslog messages to the server.

4.6.2 Database

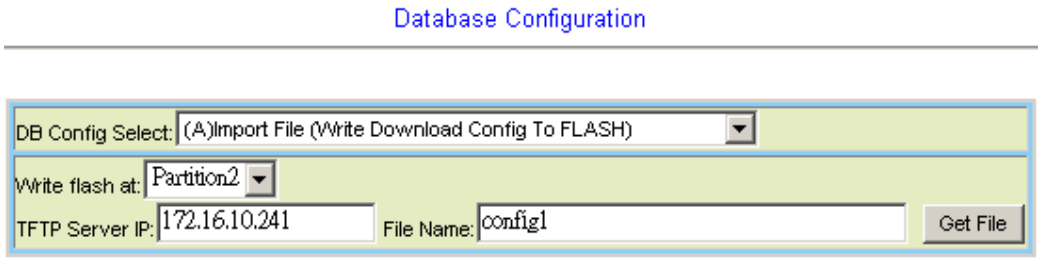
This option allows you to import/export the configuration data. From the *Maintenance* menu, click on *Database*. The following page is displayed. Select the database configuration action you want to perform.



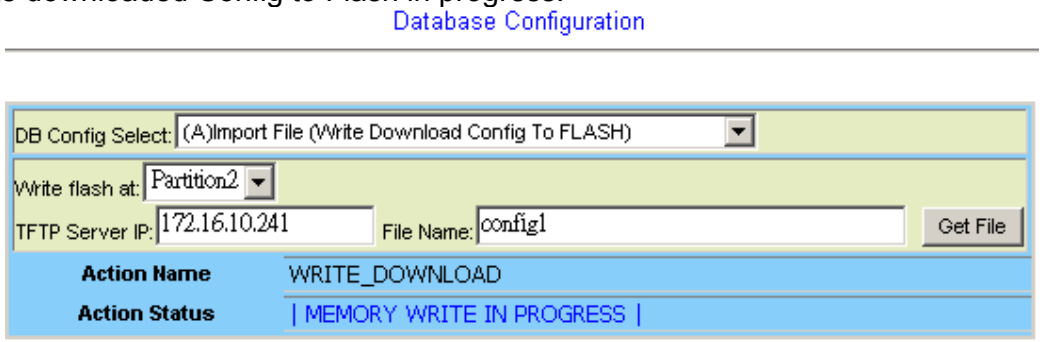
DB Configuration Concept:



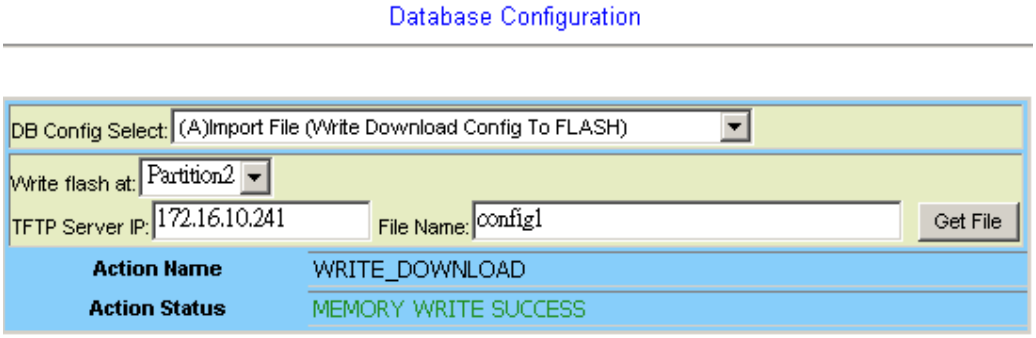
(A) Import File (Write Download Config To Flash):
Type in the TFTP Server IP address and the name of the file you want to download. Then click on **Get File** button.



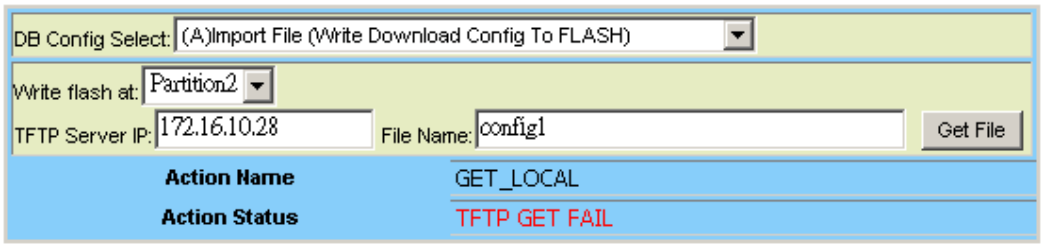
Write downloaded Config to Flash in progress:



Write to memory successfully:

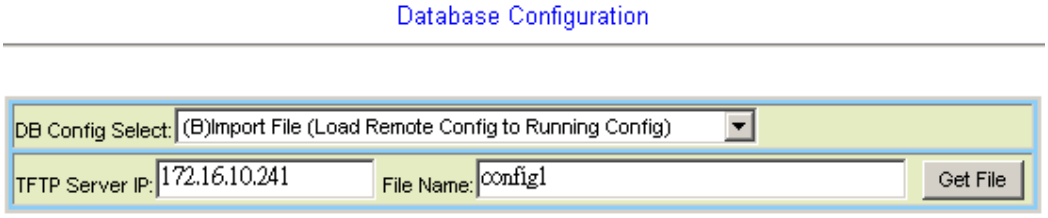


Fail to Get File:

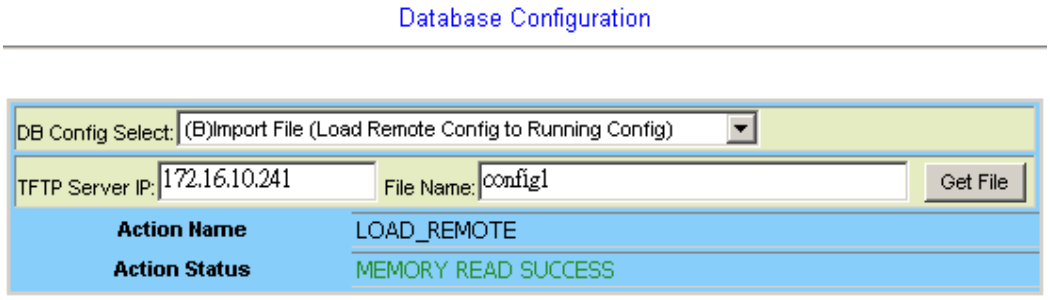


(B) Import File (Load Remote Config to Running Config)

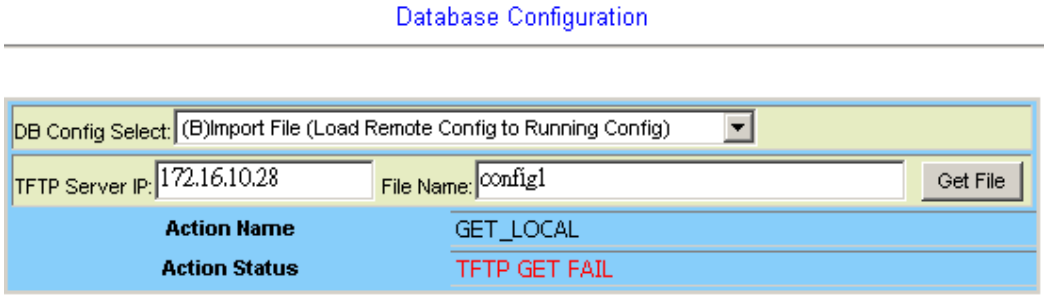
Type in the TFTP Server IP address and the name of the file you want to download. Then click on **Get File** button.



Load to Running Config successfully:

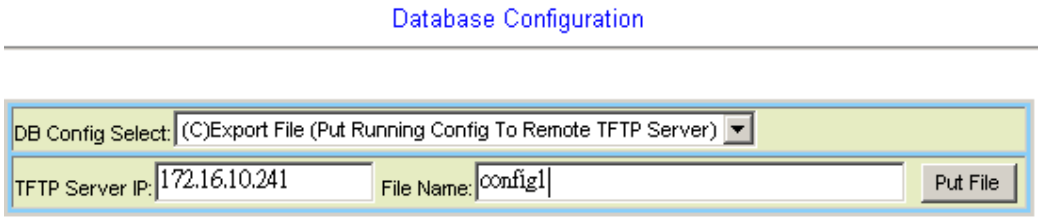


Fail to Get File:

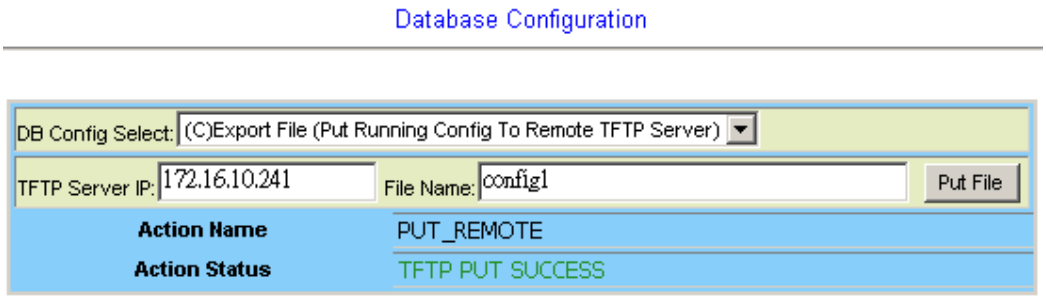


(C) Export File (Put Running Config to Remote TFTP Server)

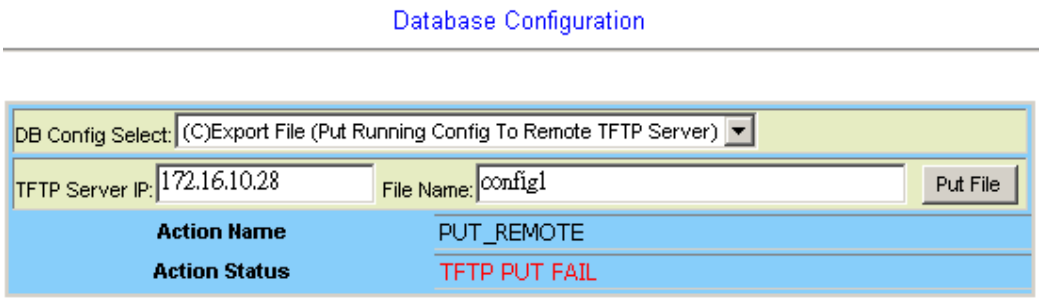
Type in the TFTP Server IP address and the name of the file you want to export. Then click on **Put File** button.



TFTP put file successfully:

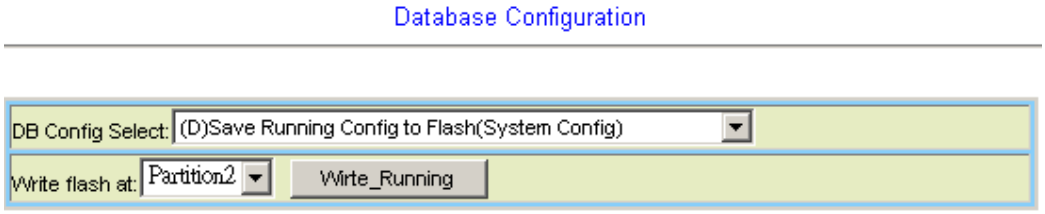


TFTP put file fail:

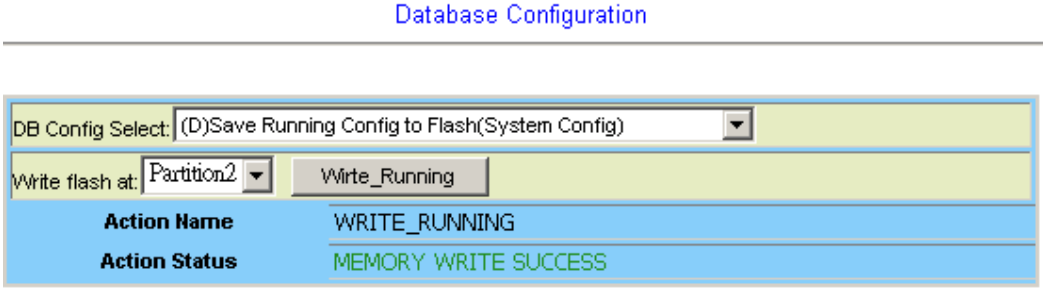


(D) Save Running Config to Flash (System Config)

Click on the drop-down list and select partition, and then click on **Write_Running** button to write running configuration to Flash.

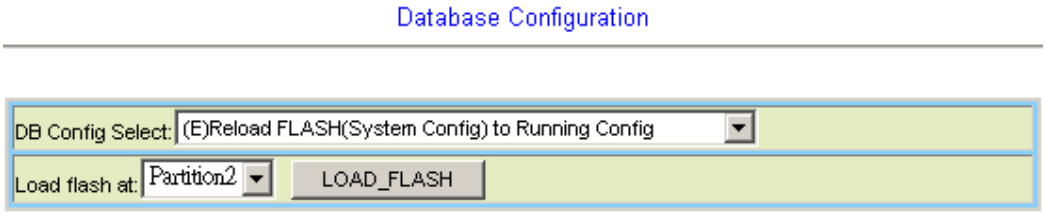


Write running config to Flash successfully:

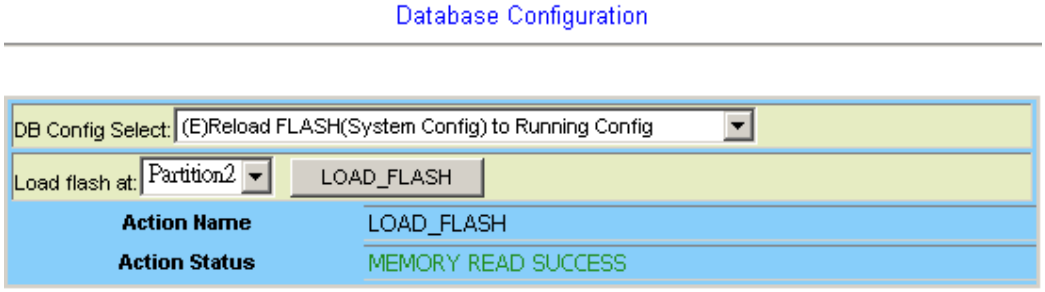


(E) Reload Flash to Running Config

Click on the drop-down list and select partition, and then click on **LOAD_FLASH** button to load configuration from Flash to Running Config.



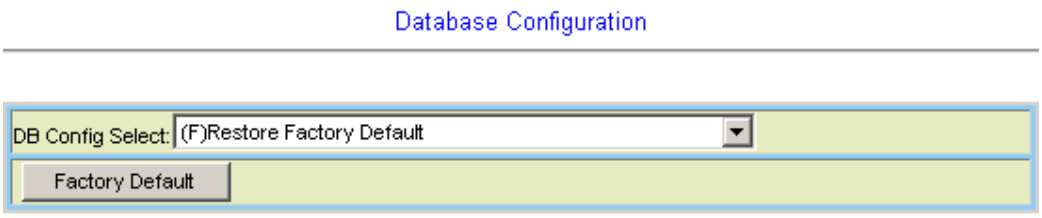
Load configuration from Flash to Running Config successfully:



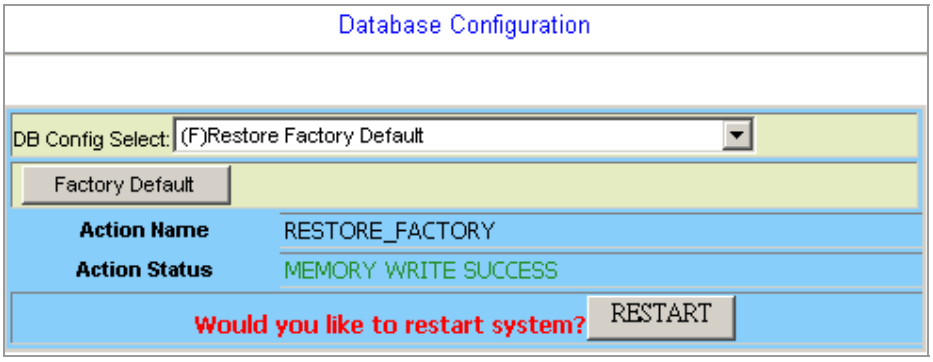
(F) Restore Factory Default

Except out-band IP address and user account, all other configuration will be restored to factory default.

Click on **Factory_Default** button to restore factory default configuration.

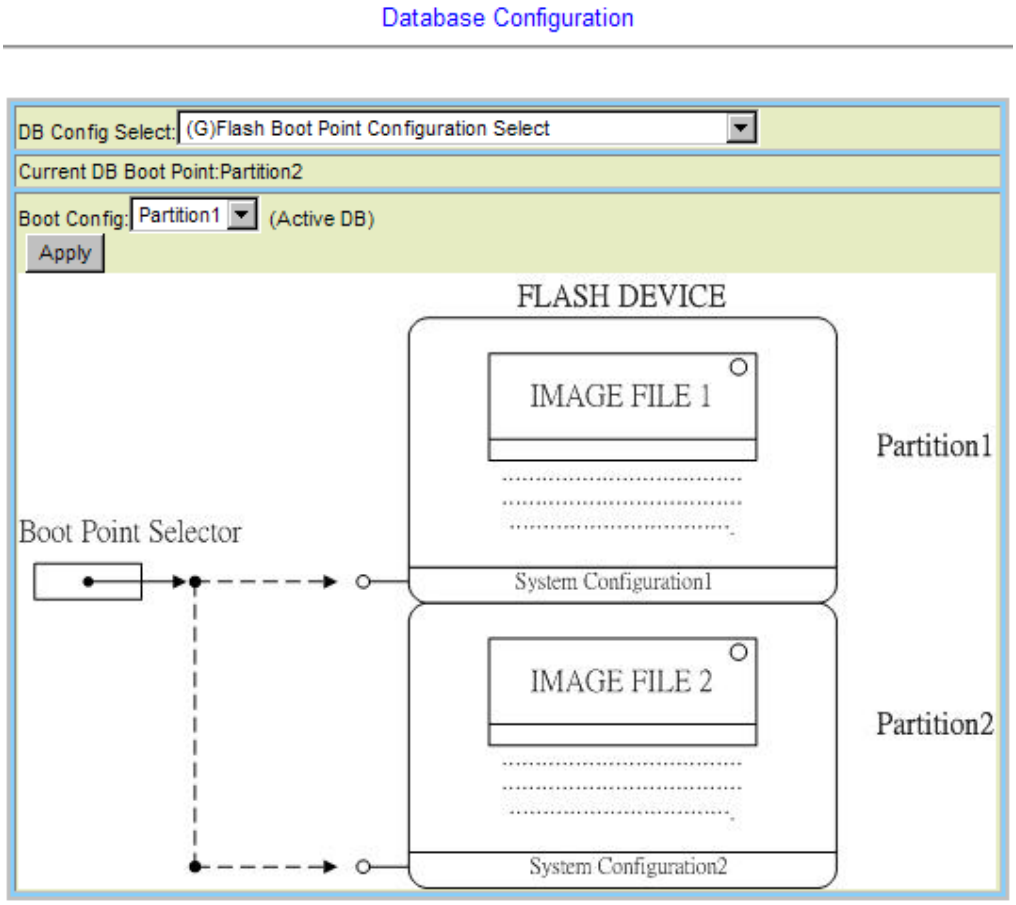


After loading default configuration to Flash successfully, you must click on **RESTART** button to restart the system so that the configuration can take effect.



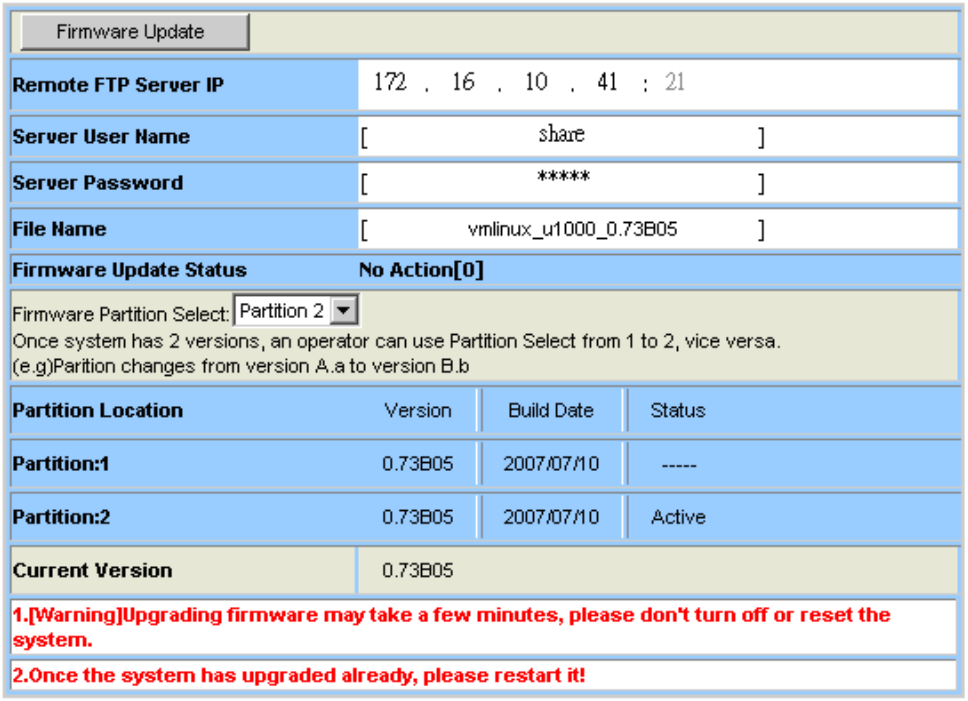
(G) Flash Boot Point Configuration Select

Click on the *Boot Config* drop-down list and select the partition (Partition1 or Partition2) as the boot point. Click on **Apply** button and then restart the system. The system will restart and load the configuration in the partition you select into the running configuration.



4.6.3 Firmware Update

This option allows you to ftp get the firmware from a server and write to flash for updating the system firmware. From the *Maintenance* menu, click on *Firmware Update*. The following page is displayed.

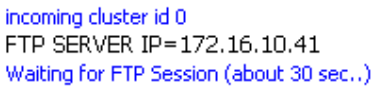


Firmware Update

Label	Description
Firmware Update	Once you have typed in the parameter values, click on this button to start firmware update.
Remote FTP Server IP	Type in the IP address of the FTP server.
Server User Name	Type in the ftp user name.
Server Password	Type in the ftp password.
File Name	Type in the firmware path and filename (max 31 characters).
Firmware Update Status	This field shows current status of firmware update process.
Firmware Partition Select	Select firmware memory partition (Partition 1 or 2). If you change to the other partition (not current partition), the system will restart immediately.
Partition Information	This section displays the partition information including firmware version, updating date, and status (active or not). Note that active partition means the partition for next power-up, not current partition in use. You can refer to **Current Version** to know which partition is the current partition in use. When you update the firmware, new firmware will be written to the partition that is not currently in use.

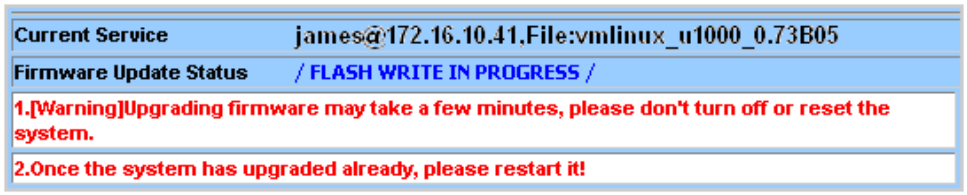
FTP Get in progress:

The following message is displayed during getting file from FTP server.



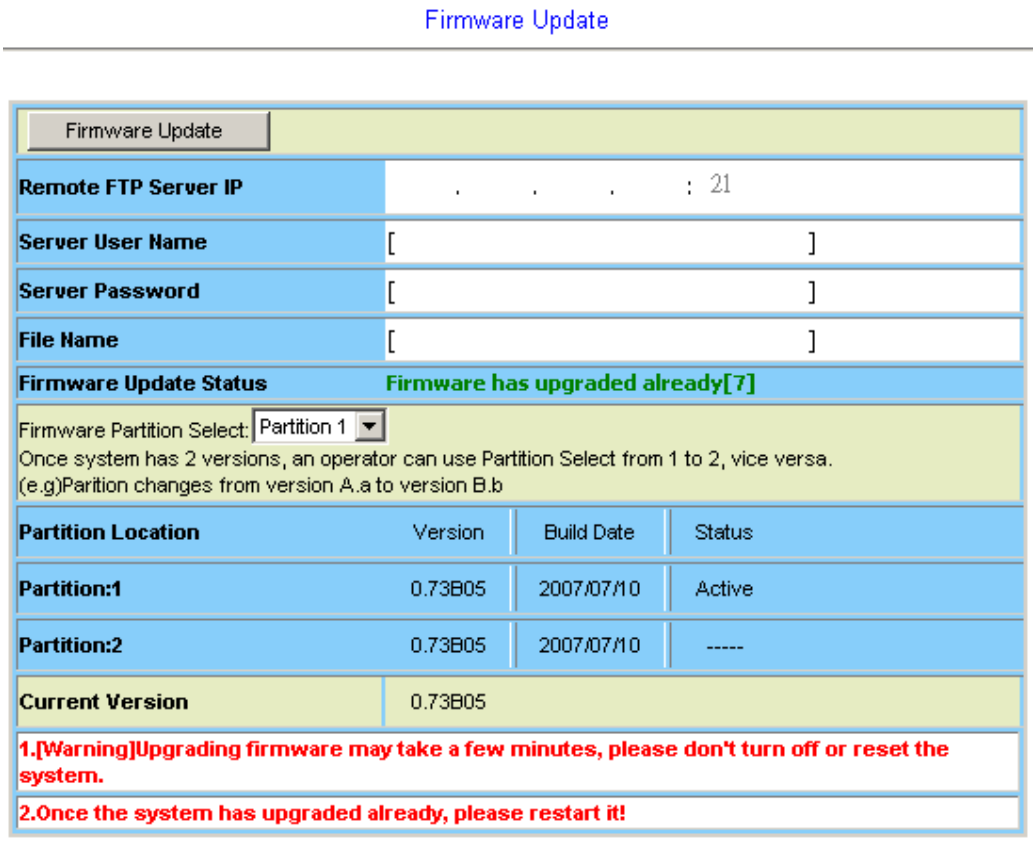
Firmware Write in progress:

The Flash Write process may take a few minutes; **you must not turn off or reset the system during the process.**



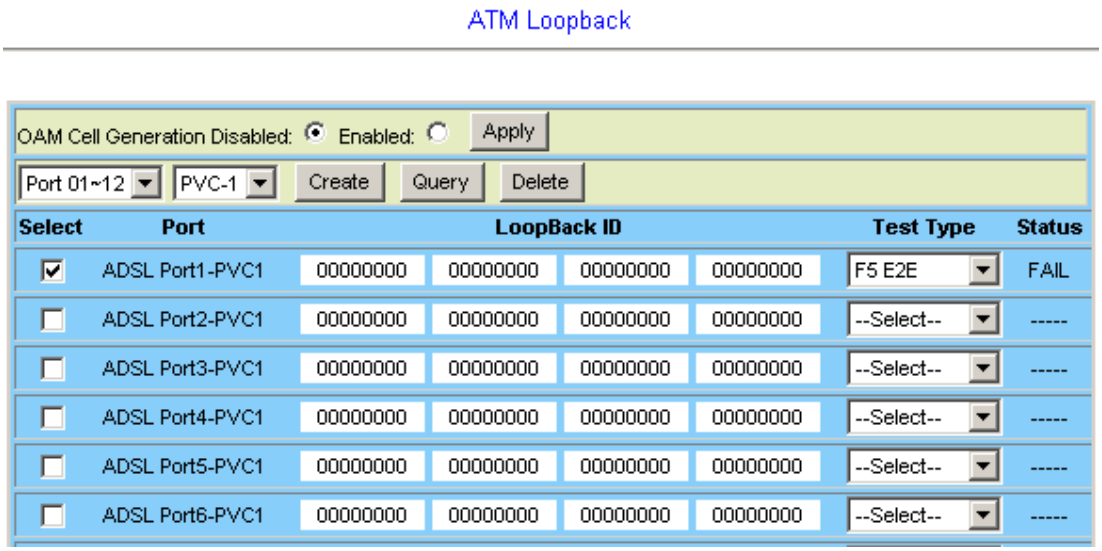
Firmware Write successfully:

When the Flash Write process has completed successfully, the Firmware Update Status shows “Firmware has upgraded already”. You can now restart the system.



4.6.4 ATM Loopbacks

This option allows you to modify the ATM F4/F5 entries or send the diagnostic entry. From the *Maintenance* menu, click on *ATM Loopbacks.* The following page is displayed:



ATM Loopbacks Setup

Label	Description
OAM Cell Generation	Click on the radio button to Disable/Enable OAM Cell Generation. Then click on **Apply** button to submit the setting.
	Click on the drop-down lists to select port range and PVC (1 ~ 8).
Create	Click on this button to create a loopback setting. *Note:* make sure the interface has been setup and the service state of the circuit is turned on.
Query	Click on this button to query the loopback status.
Delete	Click on this button to delete a loopback entry.
Select	Click on the checkbox to select the PVC you want to create or delete the loopback setting for.
Port	This field shows the line port and PVC number.
LoopBack ID	Type in a loopback ID (32 digit).
Test Type	Select the loopback type: F5 E2E or F5 Segment.
Status	This field shows current loopback testing status. Possible values are: Fail, Success, In Progress, or ----.

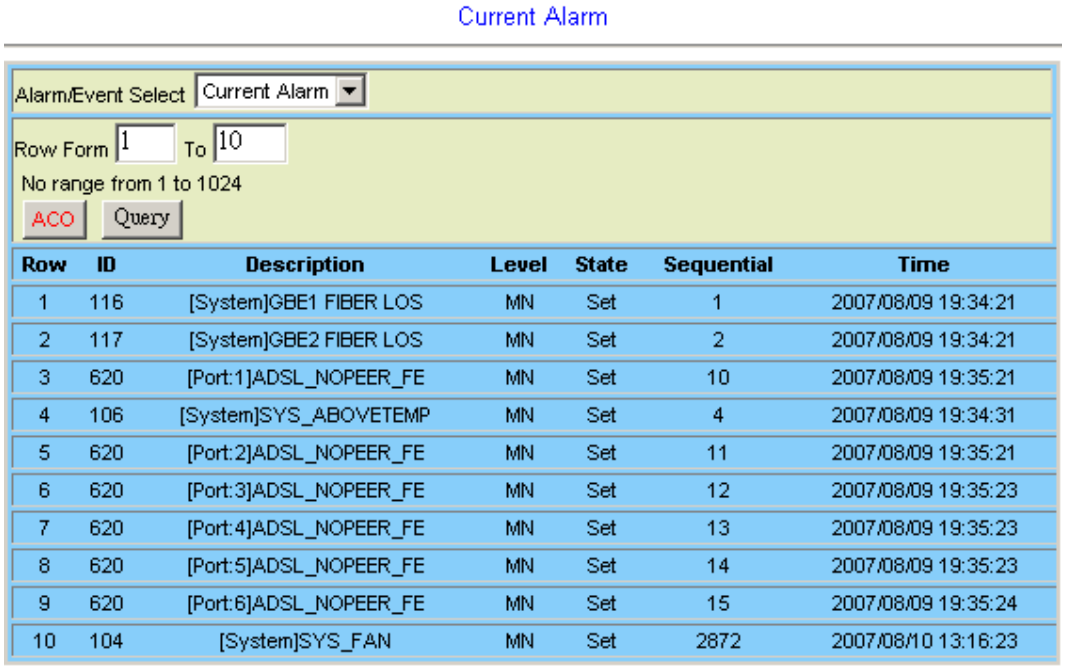
4.6.5 Fault Management

4.6.5.1 Alarm/Event

This option allows you to query current alarm, history alarm, and event log. From the *Maintenance* menu, click on *Fault Management* and then *Alarm/Event.* The *Current Alarm* page is displayed. Click on the *Alarm/Event Select* drop-down list and select Current Alarm, History Alarm, or Event Log to view.

Current Alarm:

Type in the range of rows (1 ~ 1024) and then click on the **Query** button.

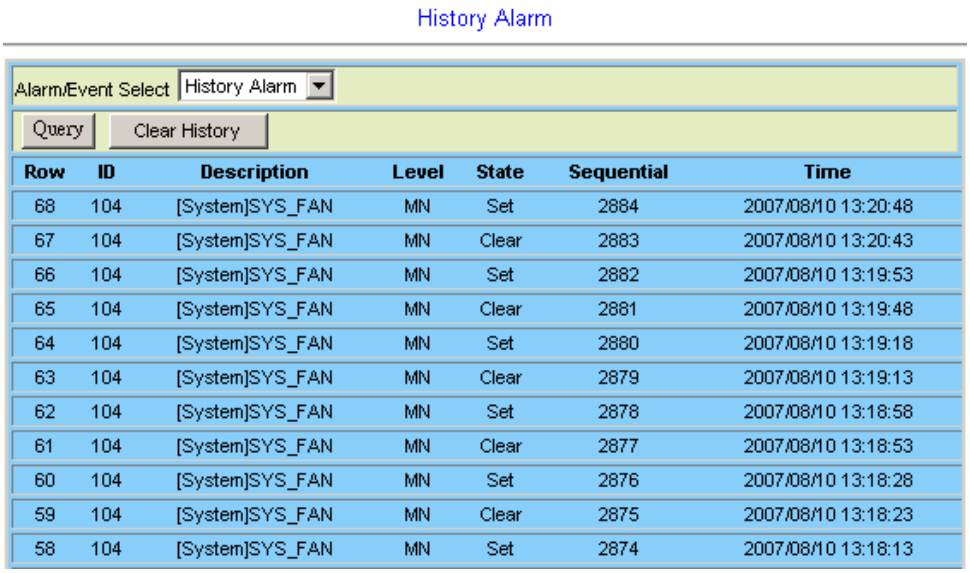


Row	ID	Description	Level	State	Sequential	Time
1	116	[System]GBE1 FIBER LOS	MN	Set	1	2007/08/09 19:34:21
2	117	[System]GBE2 FIBER LOS	MN	Set	2	2007/08/09 19:34:21
3	620	[Port:1]ADSL_NOPEER_FE	MN	Set	10	2007/08/09 19:35:21
4	106	[System]SYS_ABOVETEMP	MN	Set	4	2007/08/09 19:34:31
5	620	[Port:2]ADSL_NOPEER_FE	MN	Set	11	2007/08/09 19:35:21
6	620	[Port:3]ADSL_NOPEER_FE	MN	Set	12	2007/08/09 19:35:23
7	620	[Port:4]ADSL_NOPEER_FE	MN	Set	13	2007/08/09 19:35:23
8	620	[Port:5]ADSL_NOPEER_FE	MN	Set	14	2007/08/09 19:35:23
9	620	[Port:6]ADSL_NOPEER_FE	MN	Set	15	2007/08/09 19:35:24
10	104	[System]SYS_FAN	MN	Set	2872	2007/08/10 13:16:23

Current Alarm Table

Label	Description
ACO	Click on this button to cut-off alarm.
Query	Click on this button to get most recent data.
Row	This field shows the row number.
ID	This field shows the alarm ID.
Description	This field shows the description for the alarm.
Level	This field shows the alarm level. Valid values are: MJ: major alarm. MN: minor alarm.
State	This field shows the alarm state: Set or Clear.
Sequential	Sequential number.
Time	Alarm occurring date and time.

History Alarm:

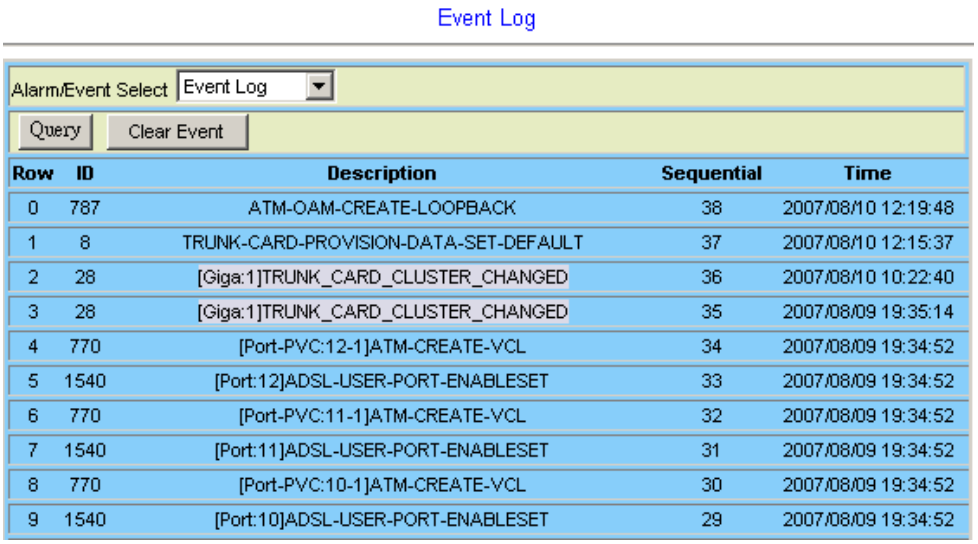


History Alarm Table

Label	Description
Query	Click on this button to query history alarms.
Clear History	Click on this button to clear the alarm history table.
Row	This field shows the row number.
ID	This field shows the alarm ID.
Description	This field shows the description for the alarm.
Level	This field shows the alarm level. Valid values are: MJ: major alarm. MN: minor alarm.
State	This field shows the alarm state: Set or Clear.
Sequential	Sequential number.
Time	Alarm occurring date and time.

Event Log:

Type in the range of rows and then click on the **Query** button.



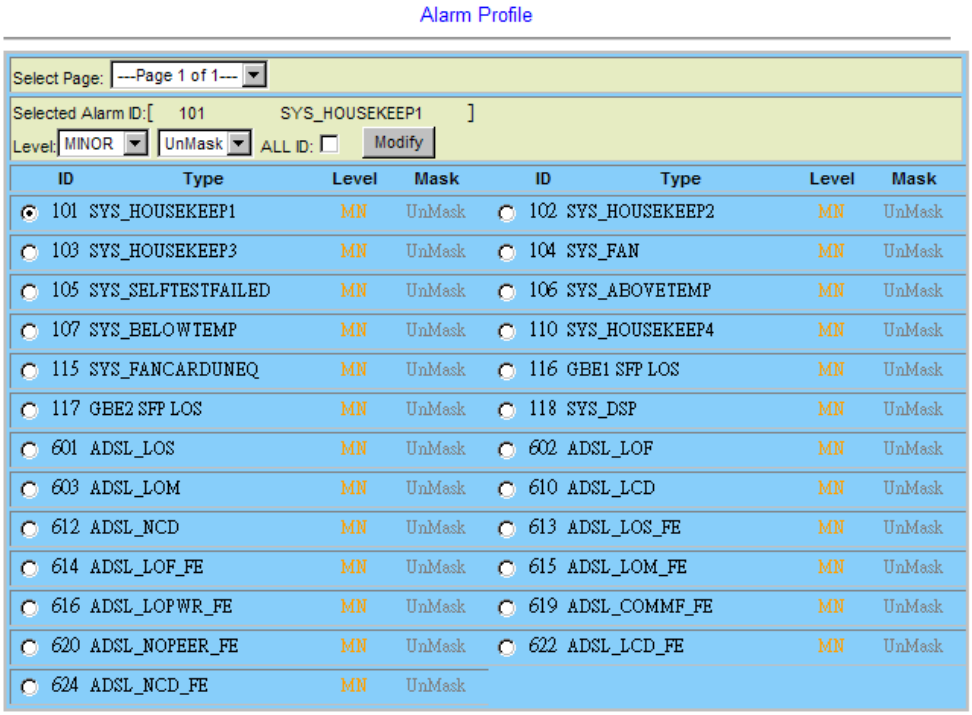
Event Log

Label	Description
Query	Click on this button to query most recent event log.
Clear Event	Click on this button to clear the event log.
Row	This field shows the row number.
ID	This field shows the event ID.
Description	This field shows the description for the event.
Sequential	Sequential number.
Time	Event occurring date and time.

4.6.5.2 Alarm Profile

This option allows you to view and update the alarm profiles. From the *Maintenance* menu, click on *Fault Management* and then *Alarm profile.* The *Alarm Profile* page is displayed. Click on the *Select Page* drop-down list and select a page to display.

To modify an alarm profile, click on the radio button beside the alarm ID, select the Level (Major/Minor), Mask/Unmask, and then click on the **Modify** button. You can also select the *ALL ID* checkbox to modify all alarm types at a time.

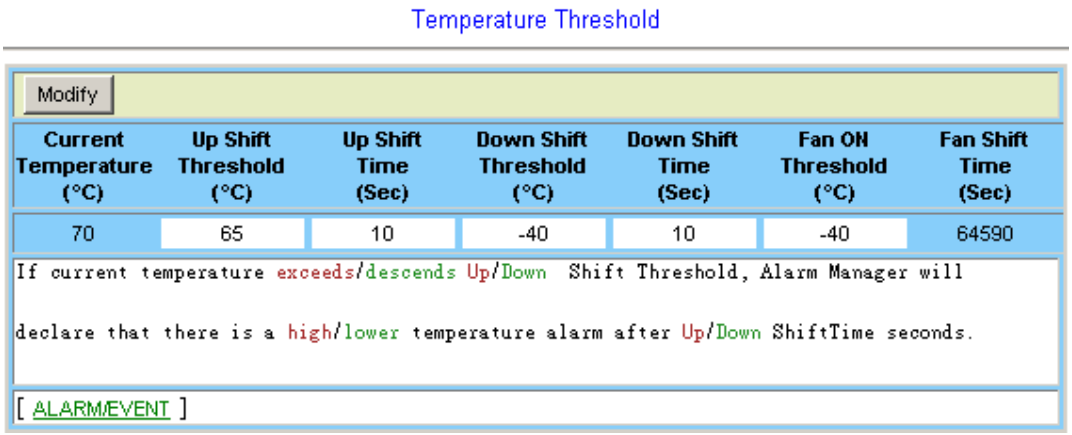


4.6.5.3 Hardware Temperature

This page allows you to:

- view current system temperature
- set several temperature and time thresholds (see description in the following table)

From the *Maintenance* menu, click on *Fault Management* and then *Hardware Temp*. The following page is displayed:



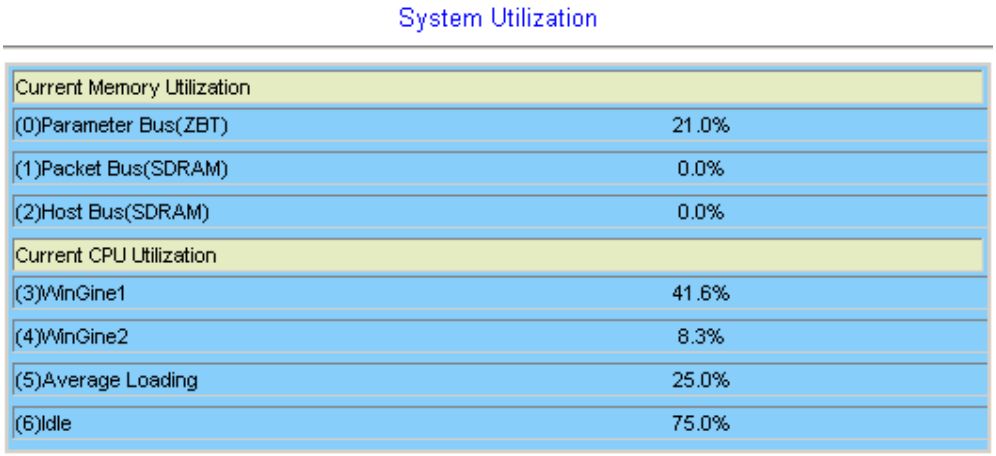
Temperature Configuration

Label	Description
Modify	Click on this button to submit the update once you have entered all the new threshold values.
Current Temperature (°C)	This field shows the current system temperature.
Up Shift Threshold (°C)	The system will produce notification (alarm) when the monitored system temperature is higher than Up Shift Threshold (-55~85 °C) for over Up Shift Time (1~255 sec).
Up Shift Time (Sec)	Refer to the description for Up Shift Threshold.
Down Shift Threshold (°C)	The system will produce notification (alarm) when the monitored system temperature is lower than Down Shift Threshold (-55~85 °C) for over Down Shift Time (1~255 sec).
Down Shift Time (Sec)	Refer to the description for Down Shift Threshold.
Fan ON Threshold (°C)	FAN Enable temperature threshold (-40~15 °C). When the system temperature is higher than the threshold, the fan will be turned on automatically.
Fan Shift Time (Sec)	This field shows the elapsed time since the FAN was turned on.

4.6.6 Performance Monitoring

4.6.6.1 System Utilization

T This option allows you to monitor the memory utilization and network processor utilization. From the *Maintenance* menu, click on *Performance Monitoring* and then *System Utilization.* The following page is displayed.



4.6.6.2 Ethernet Statistics

This option allows you to view the Gigabit Ethernet counter values for the trunk or line interface. From the *Maintenance* menu, click on *Performance Monitoring* and then *Ethernet Statistics.* Click on the leftmost drop-down list to select interface (giga port or DSL line port); if line interface is selected, you must further click on the middle and rightmost drop-down list to select the line port number and PVC number. At last, click on **Query** to get data of that interface.

GBE interface:

Ethernet Statistics

GIGA Port | XDSL Port-1 | PVC-1 | Query

Statistics Name	Giga Port 1	Giga Port 2
MTU Size	1536	1536
Queue LEN	0	0
Last Change	0	0
Specification	L	L
Description	Giga Ethernet	Giga Ethernet
Input Bytes	0	11839066
Input Broadcast Packets	0	0
Input Discard Packets	0	5729
Input Multicast Packets	0	295
Input Unicast Packets	0	0
Input Not Unicast Packets	0	295
Input Error Packets	0	0
Input Unknown Protocol Packets	0	0
Output Bytes	1870016	1814916
Output Broadcast Packets	2882	2882
Output Discard Packets	2	2
Output Multicast Packets	0	0
Output Unicast Packets	0	0
Output Not Unicast Packets	2882	2882
Output Error Packets	0	0

ADSL line PVC:

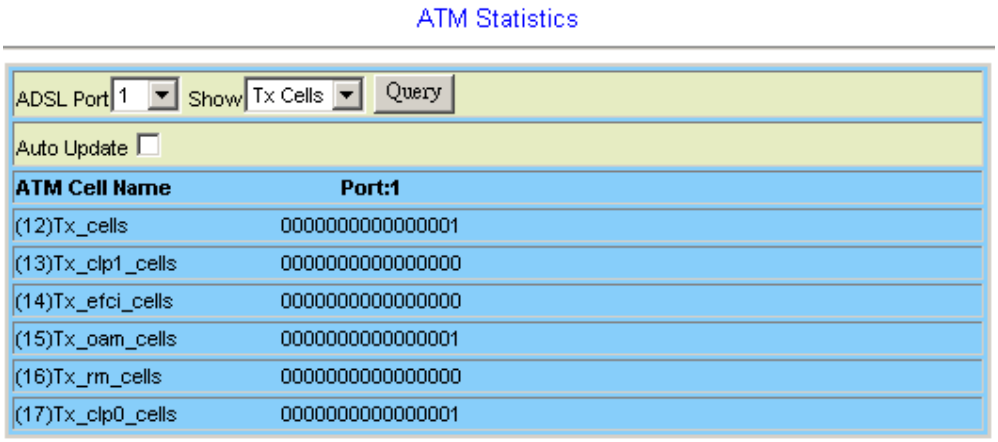
Ethernet Statistics

XDSL Port | XDSL Port-1 | PVC-1 | Query

Statistics Name	XDSL Port
MTU Size	1536
Queue Length	0
Last Change	0
Specification	L
Description	ATM
Input Bytes	0
Input Broadcast Packets	0
Input Discard Packets	0
Input Multicast Packets	0
Input Unicast Packets	0
Input Not Unicast Packets	0
Input Error Packets	0
Input Unknown Protocol Packets	0
Output Bytes	1749
Output Broadcast Packets	66
Output Discard Packets	27102
Output Multicast Packets	0
Output Unicast Packets	0
Output Not Unicast Packets	66
Output Error Packets	0

4.6.6.3 ATM Statistics

This option allows you to query the ATM Statistics. From the *Maintenance* menu, click on *Performance Monitoring* and then *ATM Statistics.* The following page is displayed.

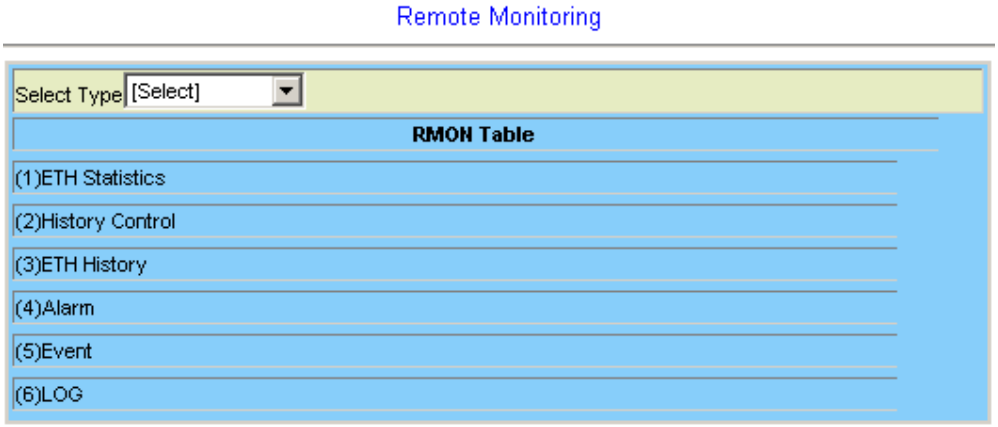


Query ATM Statistics

Label	Description
ADSL Port	Click on this button to select line port (1 ~ 48).
Auto Update	Click on this checkbox to auto update the displayed statistics.
Show	Click on this drop-down list to select Tx, Rx, or All (Tx & Rx) data.
Query	Click on this button to query current statistics.

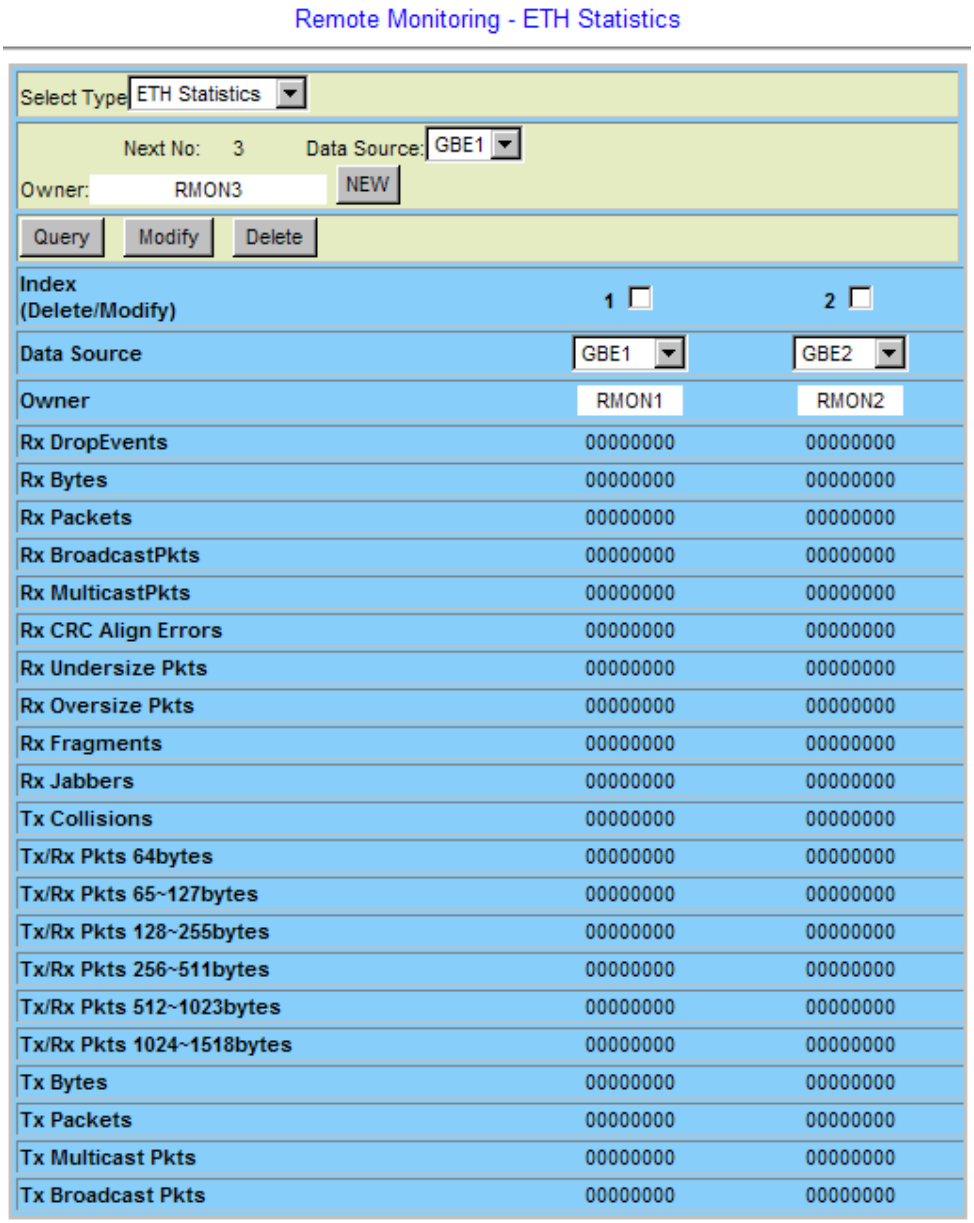
4.6.6.4 RMON

This option allows you to configure and query the RMON Statistics. The VX-1000HDX supports performance statistics defined in RMON MIB groups 1 (Ethernet statistics), 2 (history control), 3 (alarm), and 9 (event) per RFC 2819 for all network uplink ports. From the *Maintenance* menu, click on *Performance Monitoring* and then *RMON.* The following page is displayed. Select type of RMON table in the drop-down list.



✧ ETH Statistics

This option is for displaying the Ethernet interface RMON data. Click on the *Data Source* drop-down list and select GBE1 or GBE2. Type in an owner name and then click on **New** button to create a new ETH statistics entry. An owner is the entity that configured this entry and is therefore using the resources assigned to it.



To modify an entry in this table, click on the index to select the entry, type in new value, and then click on **Modify**. To delete an entry, click on the index to select the entry and then click on **Delete**.

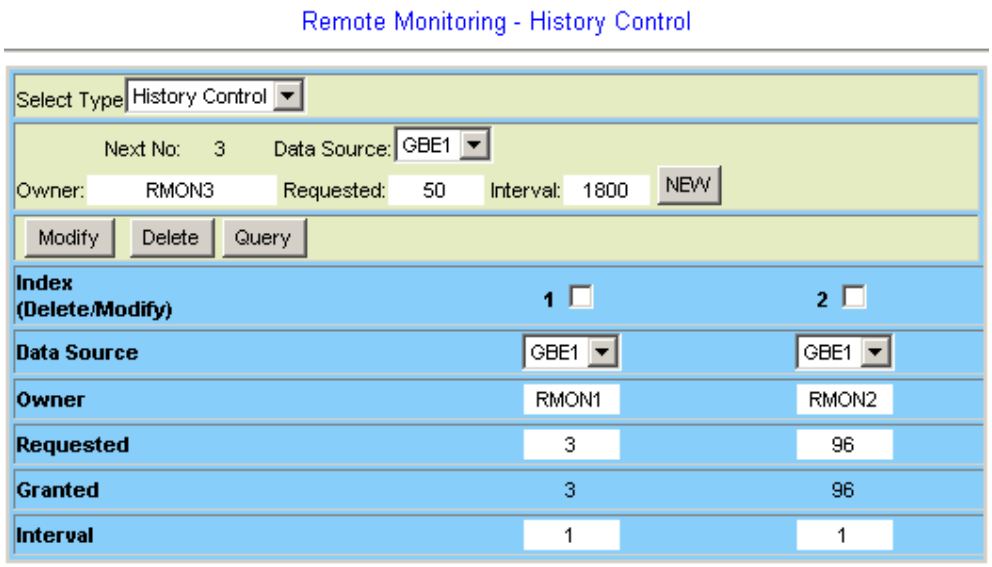
The following parameters are monitored in this table:

RMON ETH Statistics variables

Variable	Description
Rx DropEvents	Monitoring Rx dropped events
Rx Bytes	Monitoring Rx bytes packets
Rx Packets	Monitoring Rx packets
Rx BroadcastPkts	Monitoring Rx broadcast packets
Rx MulticastPkts	Monitoring Rx multicast packets
Rx CRC Align Errors	Monitoring Rx error alignment packets
Rx Undersize Pkts	Monitoring Rx undersize packets
Rx Oversize Pkts	Monitoring Rx oversize packets
Rx Fragments	Monitoring Rx fragments packets
Rx Jabbers	Monitoring Rx jabber packets
Tx Collisions	Monitoring Tx single collision packets
Tx/Rx Pkts 64 bytes	Monitoring Tx/Rx 64 bytes packets
Tx/Rx Pkts 65~127 bytes	Monitoring Tx/Rx 65 to 127 bytes packets
Tx/Rx Pkts 128~255 bytes	Monitoring Tx/Rx 128 to 255 bytes packets
Tx/Rx Pkts 256~511 bytes	Monitoring Tx/Rx 256 to 511 bytes packets
Tx/Rx Pkts 512~1023 bytes	Monitoring Tx/Rx 512 to 1023 bytes packets
Tx/Rx Pkts 1024~1518 bytes	Monitoring Tx/Rx 1024 to 1518 bytes packets
Tx Bytes	Monitoring Tx bytes packets
Tx Packets	Monitoring Tx packets
Tx MulticastPkts	Monitoring Tx multicast packets
Tx BroadcastPkts	Monitoring Tx broadcast packets

✧ History Control

This table is for controlling the ETH History table. History Control 1 is for controlling ETH History table 1; History Control 2 is for controlling ETH History table 2; etc. Type in the Requested value and Interval (sec) and then click on **New** to create a History Control entry. Up to 10 History Control entries can be created. To modify an entry, click on the index to select the entry, type in new value, and then click on **Modify**. To delete an entry, click on the index to select the entry and then click on **Delete**.

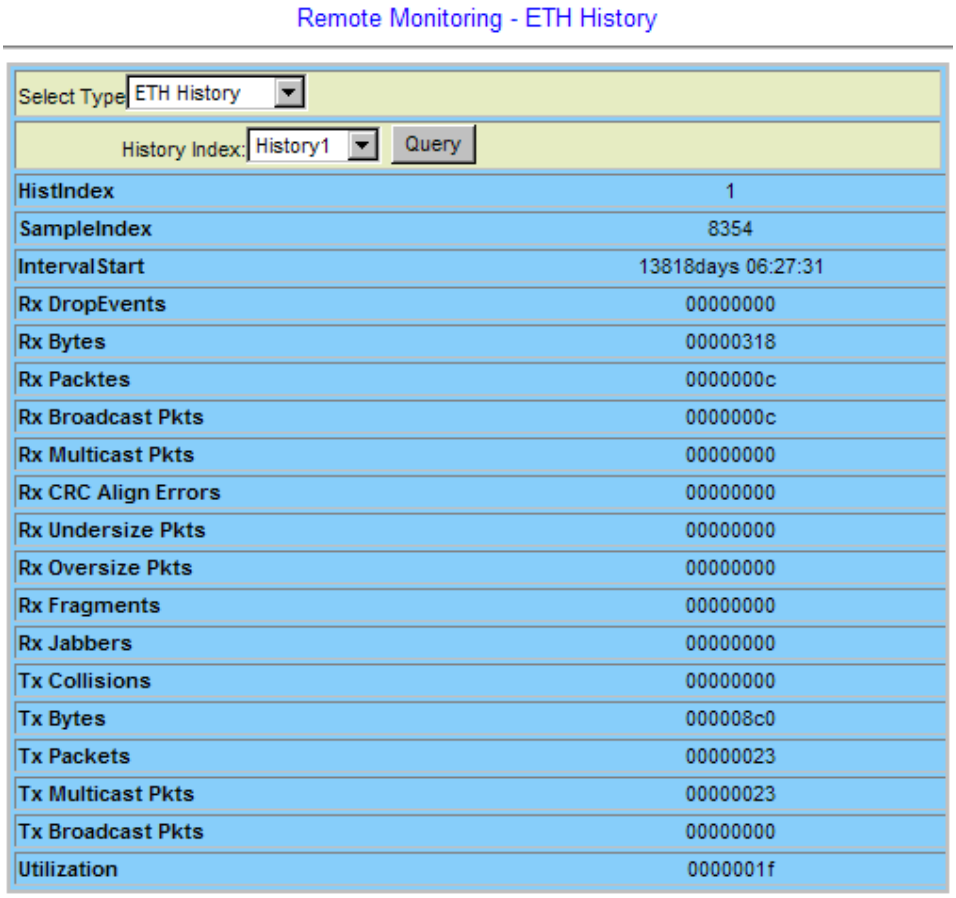


RMON History Control Table

Label	Description
Data Source	Data source identifies the source of the data for which historical data was collected and placed in a table on behalf of this HistoryControl entry. Here the source is GBE1 interface or GBE2 interface.
Owner	An owner is the entity that configured this entry and is therefore using the resources assigned to it.
Requested	Requested value is the requested number of intervals over which data is to be saved in the part of the media-specific table associated with this HistoryControl entry.
Granted	The number of sampling intervals over which data shall be saved in the part of the media-specific table associated with this HistoryControl entry.
Interval	The interval in seconds over which the data is sampled for each bucket in the part of the media-specific table associated with this HistoryControl entry. The value range is 1 to 3600 (sec).

✧ ETH History

This option is for displaying Ethernet interface RMON history data. Before a history table is available, you have to create a History Control entry in advance. To query the History table, click on the *History Index* drop-down list and select a history table and then click on **Query**.



RMON ETH History Table

Label	Description
HistIndex	This field shows the History Table index. The history identified by this index is the same history as identified by the same value of History Control index.
SampleIndex	The Sample index uniquely identifies the particular Sample among all samples associated with the same History Control entry.
IntervalStart	The value of System Up Time* at the start of the interval over which this sample was measured.

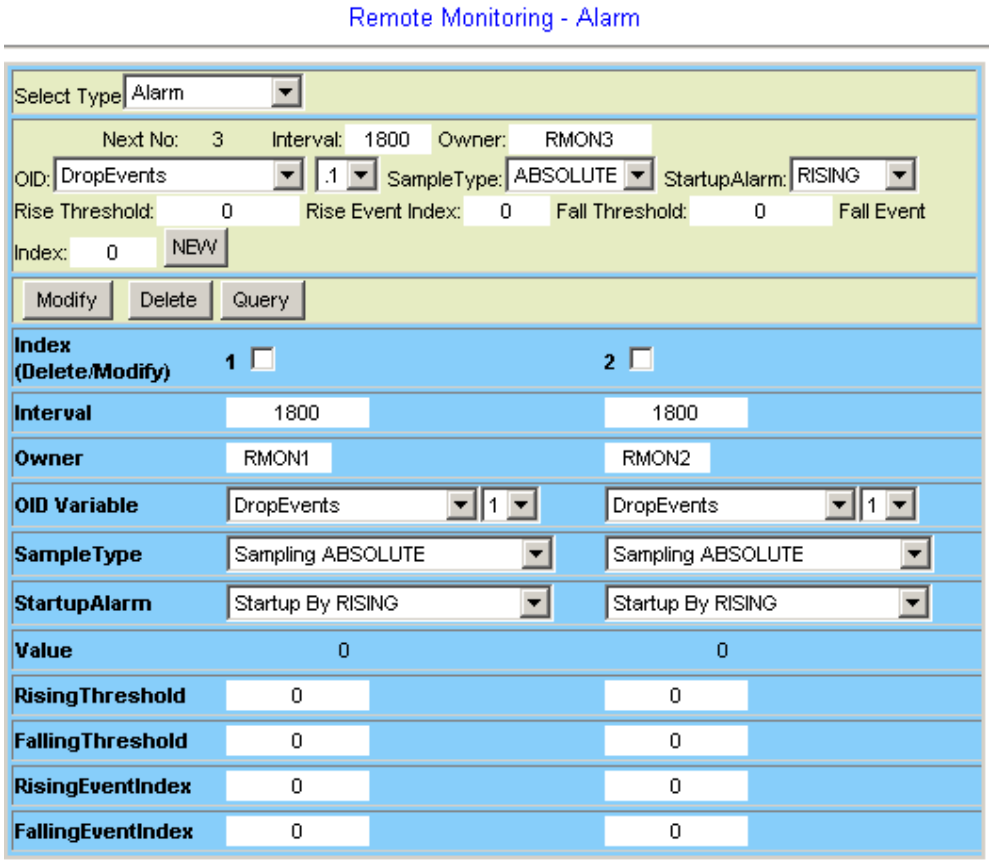
*System Up Time is the time since the network management portion of the system was last re-initialized.

RMON ETH History variables

Variable	Description
Rx DropEvents	Monitoring Rx dropped events
Rx Bytes	Monitoring Rx bytes packets
Rx Packets	Monitoring Rx packets
Rx Broadcast Pkts	Monitoring Rx broadcast packets
Rx Multicast Pkts	Monitoring Rx multicast packets
Rx CRC Align Errors	Monitoring Rx error alignment packets
Rx Undersize Pkts	Monitoring Rx undersize packets
Rx Oversize Pkts	Monitoring Rx oversize packets
Rx Fragments	Monitoring Rx fragments packets
Rx Jabbers	Monitoring Rx jabber packets
Tx Collisions	Monitoring Tx single collision packets
Tx Bytes	Monitoring Tx bytes
Tx Packets	Monitoring Tx packets
Tx Multicast Pkts	Monitoring Tx multicast
Tx Broadcast Pkts	Monitoring Tx broadcast
Utilization	Monitoring Tx Utilization

✧ Alarm

This option allows you to configure the RMON alarm setting. This table controls the conditions on which alarms occur. Click on **New** to create an entry. To modify an entry, click on the index to select the entry, type in new value, and then click on **Modify**. To delete an entry, click on the index to select the entry and then click on **Delete**.

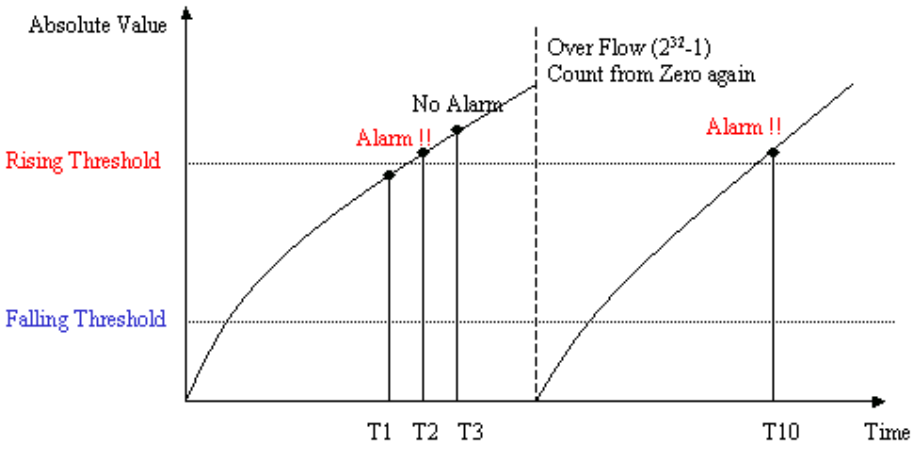


RMON Alarm setup

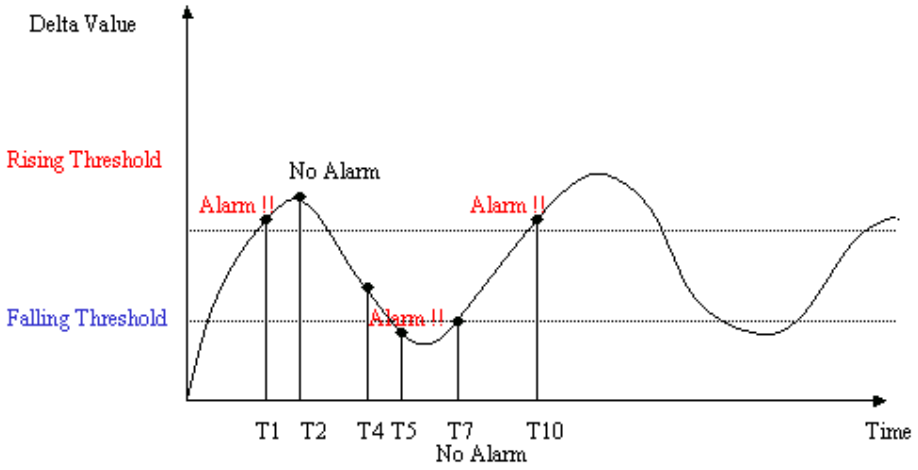
Label	Description
Interval	The interval in seconds over which the data is sampled and compared with the rising and falling thresholds. Value range: 0~2147483647 (0: disable).
Owner	RMON alarm owner (max 31 characters).
OID Variable	Click on the drop-down list to select ETH statistics variable and index of ETH Statistics table entries.
SampleType	RMON alarm sample type includes: ABSOLUTE: the value of the selected variable will be compared directly with the thresholds at the end of the sampling interval. DELTA: the value of the selected variable at the last sample will be subtracted from the current value, and the difference compared with the thresholds.

StartupAlarm	Set the alarm type that may be sent. Options are Rising, Falling, and Both. Rising or Both: If the first sample after this entry becomes valid is greater than or equal to the Rising Threshold, then a single rising alarm will be generated. Falling or Both: If the first sample after this entry becomes valid is less than or equal to the Falling Threshold, then a single falling alarm will be generated.
Value	This field shows the value of the monitored data.
Rising Threshold	RMON alarm rising threshold (0~4294967295).
Falling Threshold	RMON alarm falling threshold (0~4294967295).
Rising Event Index	This index is used when a rising threshold is crossed. You must refer to the index of RMON Event table. If there is no corresponding entry in the Event table, then no association exists.
Falling Event Index	This index is used when a falling threshold is crossed. You must refer to the index of RMON Event table. If there is no corresponding entry in the Event table, then no association exists.

Following figure shows an example of RMON alarm for ABSOLUTE sample type. As shown in the figure, the counting value keeps increasing. But when the value overflows, the system will count from zero again. The sample in T2 is the first one crossing the Rising Threshold, so an alarm occurs. No alarms will be generated afterwards unless the counting value overflows and count from zero again (the sample in T10 causes an alarm again).



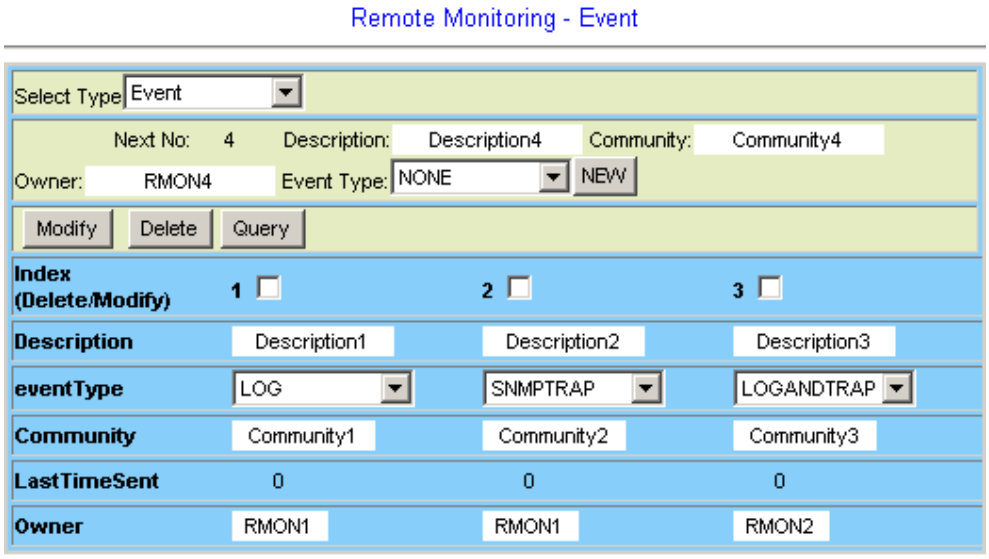
Another figure shows the example of RMON alarm for DELTA sample type. As shown in the following figure, the delta value varies high and low. The sample in T1 is the first one crossing the Rising Threshold, so an alarm occurs. No alarms will be generated afterwards until T5 sample which is crossing the Falling Threshold (note that the value of the previous sample, T4 sample, is greater than the Falling Threshold and the value of T5 sample). Alarm is not generated for T7 sample since an alarm is already generated for T5 sample and the curve is not in a downward trend around T7. A Rising Threshold crossing alarm is generated again for T10 sample, because a Falling Threshold crossing alarm (T5) has occurred after the previous Rising Threshold crossing alarm (T1).



✧ **Event**

This option allows you to configure the RMON event setting. Click on **New** to create an entry.

To modify an entry, click on the index to select the entry, type in new value, and then click on **Modify**. To delete an entry, click on the index to select the entry and then click on **Delete**.

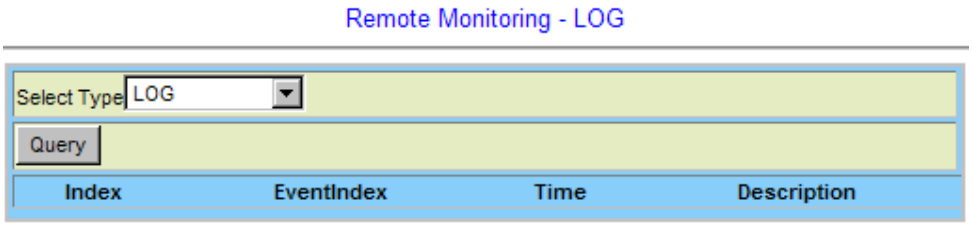


RMON Event setup

Label	Description
Description	Type in comment describing the event.
Community	If an SNMP trap is to be sent, it will be sent to the SNMP community specified in this column.
Owner	Type in the RMON event owner.
Event Type	Click on the drop-down list and select event type. Options are NONE, LOG (an entry is made in the log table for each event), SNMPTRAP (an SNMP trap is sent to one or more management stations), LOGANDTRAP (log and send trap).
LastTimeSent	The value of System Up Time at the time this event entry last generated an event.

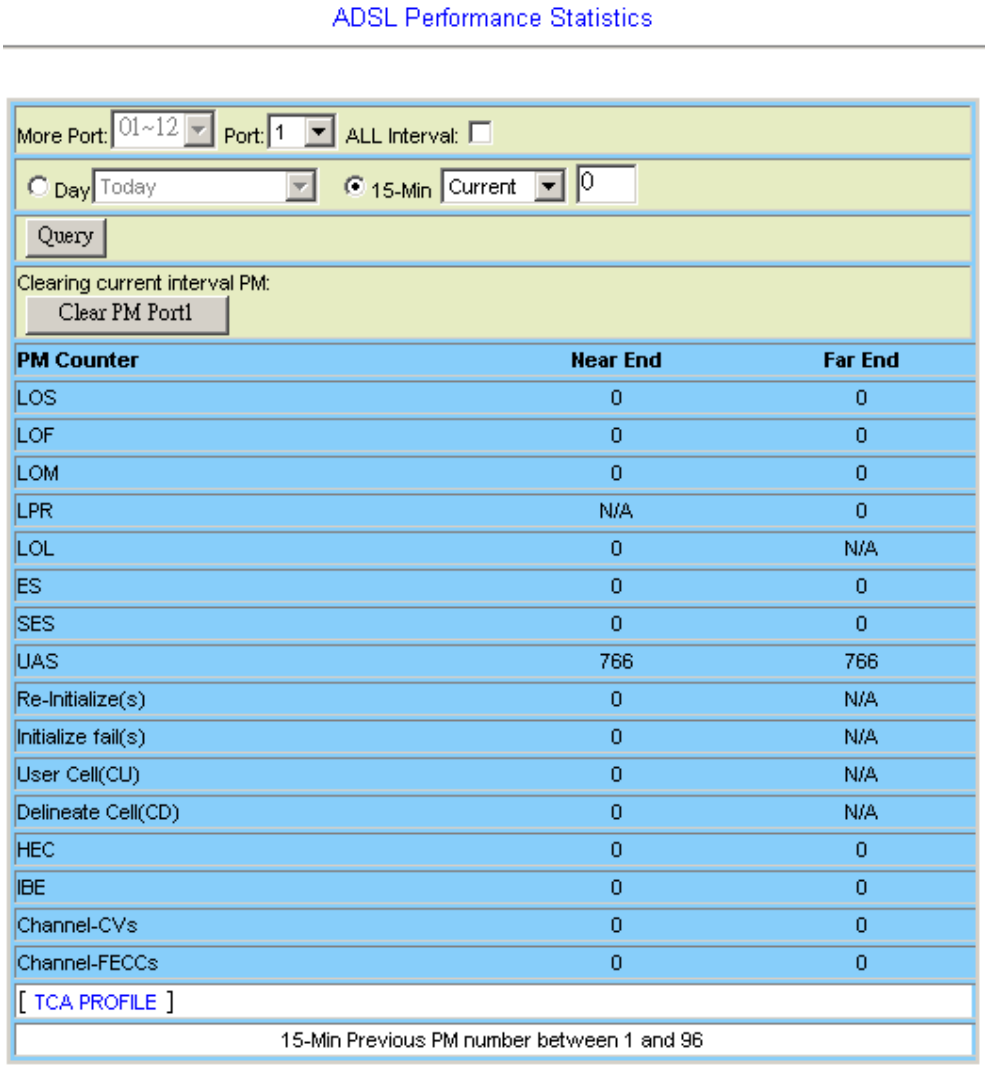
✧ **LOG**

This option allows you to query the RMON LOG. Click on **Query** button to display the log. Only the event indices with LOG or LOGANDTRAP event type are possible to appear in the log.



4.6.6.5 ADSL Day/Interval

This option allows you to query the ADSL PM 15-Min and Day Statistics. The VX-1000HDX provides Today and Previous 1 day for Day PM, and also provides Current and Previous 1 ~ 96 interval for 15-Min PM. From the *Maintenance* menu, click on *Performance Monitoring* and then *ADSL Day/Interval.* The following page is displayed. You can select to display one interval or all intervals data of a single port; you can also select to display one interval data for twelve ports (1~12, 13~24, 25~36, or 37~48) at the same time.



ADSL PM Statistics

Label	Description
More Port	Click on the drop-down list and select the port range. Options are: 01~12, 13~24, …, 37~48. This drop-down list is available only when **All** is selected in the *Port* drop-down list.
Port	Click on the drop-down list and select a line port number (1 ~ 48). You can also select **All** and then click on *More Port* to select a port range to view the data of twelve ports at the same time.
All Interval	When you select to view a single port PM data, you can click on this checkbox to display the data of all intervals.
Query	Click on this button to get most recent data.
Clear PM	Click on this button to clear current PM data of the port you select.
LOS	Loss of Signal
LOF	Loss of Frame
LOM	Loss of Margin
LPR	Loss of Power (only for Far End)
LOL	Loss of Link (only for Near End)
ES	Errored Seconds
SES	Severely Errored Seconds
UAS	Unavailable Seconds
Re-Initialize	Modem Re–initialization events (only for Near End)
Initialize fail(s)	Modem Failed Initialization events (only for Near End)
User Cell (CU)	User Total Cell Count (only for Near End)
Delineate Cell (CD)	Delineated Total Cell Count (only for Near End)
HEC	ATM Header Error Count
IBE	Idle Cell Bit Error Count
Channel-CVs	Channel PM - Code Violations
Channel-FECCs	Channel PM- Forward Error Corrections

CLI Command Reference

Introduction

Access to the Operations System (OS) /Network Element (NE) system is protected by a logon security system. You can log on to the NE with the user name and password. After three failed logon attempts, the system refuses further attempts.

After you log on, the system monitors the interface for periods of inactivity. If the interface is inactive for too long, you are automatically logged off.

All the NEs have the same initial user name (admin) and password (admin). You should change the password as soon as possible, because the initial password is known to anyone who reads this manual. You can also change the user name or add additional user names. Use the “account add” command to enter a new user identification, password and authorization level. The system can handle one local logon session and at least four remote/OS sessions.

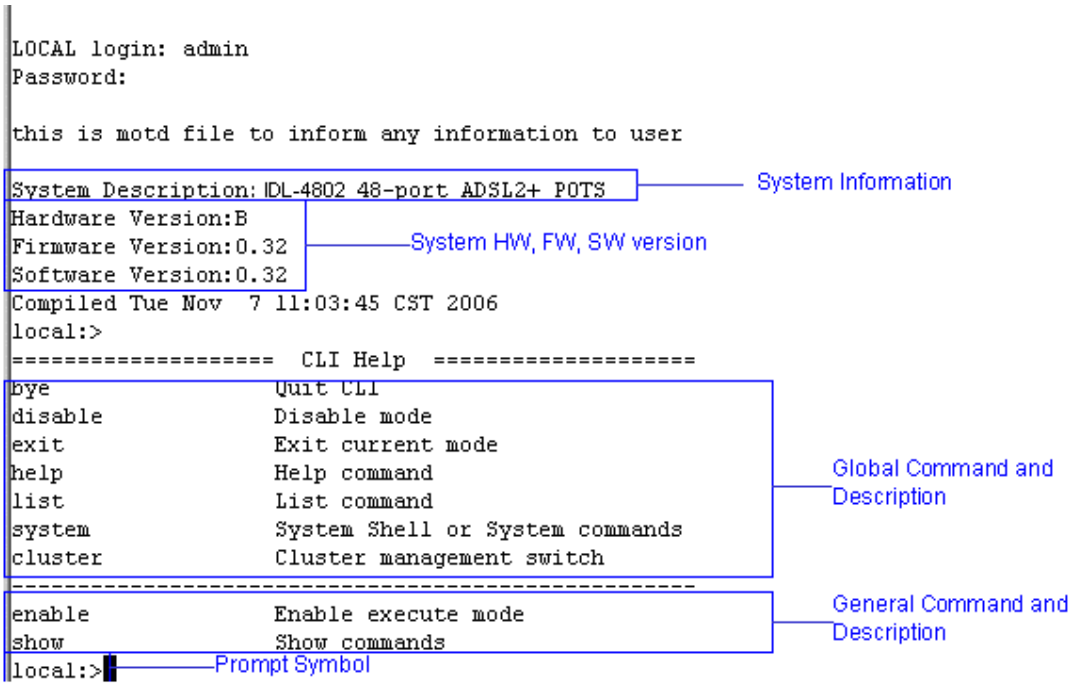
Connect Interface

Interface	Parameter
Console	Baud rate: 9600, Data bit:8, Parity: None, Stop bit :1
Telnet	Port 23
SSH	Port 22 (In Windows, you can run terminal emulator such as PuTTY)

Authorization Level

Level	Description
Super user	Superuser can run all commands.
Engineer	Engineer can run all commands except the commands for creating/modifying/ deleting account and displaying running configuration.
Guest (default)	Guest can run most commands except the commands that have creating/ modifying/deleting purpose.

Screen Description



Screen Description

Execution Modes

The CLI contains several execution modes. Users will see different set of commands under different execution modes. Following table lists all the execution modes and their purposes. When users enter a certain execution mode, the corresponding mode prompt will be displayed automatically on the screen. The mode prompts of all the execution modes are also listed in list of Execution modes.

List of Execution Modes

Execute mode	Description	Prompt symbol
Initialize	Without login prompt or already authenticated	>
Enable	Management capable	%
Configure	Configuration capable	(conf)#
Interface	Interface configure capable	(intf-conf)#
Ethernet Interface	Ethernet Interface configure capable	(ethernet-intf-conf)#
ATM Bridge	ATM Bridge configuration capable	(bridge-atm-conf)#
ATM Description	ATM Description configuration capable	(atm-desc-conf)#
ADSL config	ADSL line configuration capable	(adsl-intf-conf)#
IPOA config	IPoA routed mode configuration capable	(ipoa-intf-conf)#
Bridge	Bridge configuration capable	(bridge-eth-conf)#
Access List	ACL configuration capable	(acl-conf)#
Service Profile	User/Line service profile configuration capable	(service-profile)#
Spectrum Profile	User/Line spectrum profile configuration capable	(spectrum-profile)#
Alarm Profile	User/Line alarm profile configuration capable	(alarm-profile)#
Tca Profile	User/Line tca profile configuration capable	(tca-profile)#
IGMP ACL Profile	IGMP ACL profile configuration capable	(igmpacl-profile)#
Rate Limit Profile	Rate-Limit Policer profile configuration capable	(rate-limit-profile)#
Priority List	Priority List configuration capable	(prio-conf)#

Getting help

The user can get help in two ways.

The first is by using the **help** command. The user can also enter a question mark '**?**' at each position in the command. The displayed result depends on the execution mode and previous input.

Terminal Key Function

Following is the list of all the terminal keys and their function.

List of Terminal Keys

TAB	Attempt to perform completion on the text before point
TAB TAB	Display the next keyword of this command
?	Display help of command
ENTER	Execute input
DEL or BACKSPACE	Delete the character to the left of the cursor
UP Arrow	History of last input line
DOWN Arrow	History of previous input Line
CTRL-d	Delete the character at point. If point is at the beginning of the line, there are no characters in the line, and the last character typed was not bound to delete-char, then return EOF.
CTRL-a	Move to the start of the line
CTRL-e	Move to the end of the line
CTRL-f	Move Forward one character
CTRL-b	Move Back one character
CTRL-c	Force to interrupt
CTRL-k	Kill the text from the current cursor to the end
CTRL-p	Move ‘back’ through the history list, fetching the previous command.
CTRL-n	Move ‘forward’ through the history list, fetching the next command.
CTRL-r	Search backward starting at the current line and moving ‘up’ through the history as necessary. This is an incremental search.
CTRL-t	Drag the character before the cursor forward over the character at the cursor, moving the cursor forward as well. If the insertion point is at the end of the line, this transposes the last two characters of the line. Negative arguments have no effect.
CTRL-u	Kill backward from the cursor to the beginning of the current line.
CTRL-w	Kill the word behind point, using white space as a word boundary. The killed text is saved on the kill-ring.
CTRL-y	Yank the top of the kill ring into the buffer at point.
CTRL-s	Terminal will not response to what the operator key in
CTRL-q	Back to normal mode from terminal not responding mode
CTRL-z	Exit current execution mode

Notation Conventions

The notation conventions for the parameter syntax of each CLI command are as follows:

- Parameters enclosed in [ ] are optional.
- Parameter values are separated by a vertical bar **"|"** only when one of the specified values can be used.
- Parameter values are enclosed in **{ }** when you must use one of the values specified.

About String-type Parameters

Some commands have string type parameters. When you type in the values of these parameters, you must be careful not to use the keyword that is actually a part of some command. For example, 'account add default' will cause a syntax mistake, since **default** is the keyword of the command 'igmp default' and some other commands. Therefore, it is recommended to add " " when you have to use the command keyword as the parameter value. In this way, the keyword will be regarded as a common string. For example, account add "default".

5.1 Global Commands

The Global commands can be used in all execution modes.

5.1.1 bye

Description Exit

Syntax bye

Parameter None

5.1.2 cluster

Description Switch to a NE (network element) in the cluster

Syntax cluster <string>

Parameter

Name	Description
<string>	NE name in the cluster you want to switch to. **Valid values**: string type value. **Default value**: - **Type**: Mandatory

5.1.3 cluster local

Description Switch to Master in the cluster

Syntax cluster local

Parameter None

5.1.4 disable

Description Go to Disable execution mode from logoff mode

Syntax disable

Parameter None

5.1.5 end

Description Return to Enable mode

Syntax end

Parameter None

5.1.6 exit

Description Go to previous execution mode

Syntax exit

Parameter None

5.1.7 help

Description Display help

Syntax help

Parameter None

5.1.8 list

Description Display all commands of current mode

Syntax list

Parameter None

5.1.9 list opmode

Description List all the ADSL modes of operation.

Syntax list opmode

Parameter None

5.1.10 system contact

Description Set system contact

Syntax system contact <contact>

Parameter

Name	Description
<contact>	System contact **Valid values:** string type value. Max 63 characters. **Default value**: - **Type**: Optional

5.1.11 system location

Description Set system location

Syntax system location <location>

Parameter

Name	Description
<location>	System location **Valid values:** string type value. Max 63 characters. **Default value**: - **Type**: Optional

5.1.12 system name

Description Set system name

Syntax system name <name>

Parameter

Name	Description
<name>	System name **Valid values:** string type value. Max 32 characters. **Default value**: - **Type**: Optional

5.1.13 system restart

Description Restart the system

Syntax system restart

Parameter None

5.2 Initialize Mode Commands

5.2.1 enable

Description Go to Enable execution mode from disable mode
Syntax enable
Parameter None

5.2.2 show license

Description Display GNU software license
Syntax show license
Parameter None

5.2.3 show time

Description Display current time
Syntax show time
Parameter None

5.2.4 show uptime

Description Display System up time and CPU loading
Syntax show uptime
Parameter None

5.2.5 show version

Description Display CLI software version
Syntax show version
Parameter None

5.3 Enable Mode Commands

The commands in this section can be executed only in the Enable execution mode.

5.3.1 configure

Description Go to Configure execution mode from Enable mode.

Syntax configure

Parameter None

5.3.2 ping

Description ICMP echo and reply from hostname address or IP address. If no reply for a long time, you can press Ctrl + c to interrupt ping.

Syntax ping {ipv4 address}

ping {ipv4 address} count <count>

ping {ipv4 address} size <size>

ping {ipv4 address} count <count> size <size>

Parameter

Name	Description
ipv4 address	IPv4 address. **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: -
count	The number of PING packets sent. **Default value**: -
size	Packet size. **Default value**: -

5.3.3 show access-list bcrate

Description Display all broadcast rate limiting list

Syntax show access-list bcrate

Parameter None

5.3.4 show access-list dstip

Description Display all dest IP deny access list or by index

Syntax show access-list dstip [<index>]

Parameter

Name	Description
<index>	Destination IP deny access list number. **Valid values**: 1 ~ 256 **Default value**: - **Type**: Optional

5.3.5 show access-list dstmac

Description Display all destination MAC address deny access list or by index

Syntax show access-list dstmac [<index>]

Parameter

Name	Description
<index>	Destination MAC deny access list number. **Valid values**: 1 ~ 256 **Default value**: - **Type**: Optional

5.3.6 show access-list ethertype

Description Display all EtherType deny access list or by index

Syntax show access-list ethertype [<index>]

Parameter

Name	Description
<index>	EtherType deny access list number. **Valid values**: 1 ~ 256 **Default value**: - **Type**: Optional

5.3.7 show access-list ip-allowed

Description Display all static IP allowed access list or by index

Syntax show access-list ip-allowed [<index>]

Parameter

Name	Description
<index>	Static IP allowed access list number. **Valid values**: 1 ~ 256 **Default value**: - **Type**: Optional

5.3.8 show access-list ipprotocol

Description Display all IP protocol deny access list or by index

Syntax show access-list ipprotocol [<index>]

Parameter

Name	Description
<index>	IP Protocol deny access list number. **Valid values**: 1 ~ 256 **Default value**: - **Type**: Optional

5.3.9 show access-list l4dstport

Description Display all L4 dest port deny access list or by index

Syntax show access-list l4dstport [<index>]

Parameter

Name	Description
<index>	L4 destination port deny access list number. **Valid values**: 1 ~ 256 **Default value**: - **Type**: Optional

5.3.10 show access-list mcfldrate

Description Display all flooding rate limiting list or by VLAN ID

Syntax show access-list mcfldrate [vlan <VLAN ID>]

Parameter

Name	Description
VLAN ID	VLAN ID. **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory

5.3.11 show access-list srcip

Description Display all source IP deny access list or by index

Syntax show access-list srcip [<index>]

Parameter

Name	Description
<index>	Source IP deny access list number. **Valid values**: 1 ~ 256 **Default value**: - **Type**: Optional

5.3.12 show access-list srcmac

Description Display all source mac address deny access list or by index

Syntax show access-list srcmac [<index>]

Parameter

Name	Description
<index>	Source MAC deny access list number. **Valid values**: 1 ~ 256 **Default value**: - **Type**: Optional

5.3.13 show account

Description Display system account list / detail information

Syntax show account [detail]

Parameter None

5.3.14 show aging

Description Display bridge aging time

Syntax show aging

Parameter None

5.3.15 show alarm current

Description Display current alarm list

Syntax show alarm current

Parameter None

5.3.16 show alarm event

Description Display event list

Syntax show alarm event

Parameter None

5.3.17 show alarm history

Description Display alarm history list

Syntax show alarm history

Parameter None

5.3.18 show alarm aco

Description Display ACO status

Syntax show alarm aco

Parameter None

5.3.19 show atmdesc

Description Display ATM descriptor

Syntax show atmdesc

Parameter None

5.3.20 show atm-loopback

Description Display ATM loopback status (by port)

Syntax show atm-loopback [<port>]

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Optional

5.3.21 show cli-config

Description Display current setting for CLI configuration (timeout value, session value)

Syntax show cli-config

Parameter None

5.3.22 show cluster

Description Display cluster configuration / Display cluster member list / Display cluster status

Syntax show cluster {config | member | status}

Parameter None

5.3.23 show cpu

Description Display CPU information

Syntax show cpu

Parameter None

5.3.24 show dsl-line-identify

Description Display DSL line identify information

Syntax show dsl-line-identify

Parameter None

5.3.25 show fdb

Description Display all MAC learning table or by VLAN ID

Syntax show fdb [vlan <VLAN ID>]

Parameter

Name	Description
<VLAN ID>	VLAN ID. **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory

5.3.26 show fdbstatic

Description Display all static MAC forwarding table or by index

Syntax show fdbstatic [<index>]

Parameter

Name	Description
<index>	Static MAC forwarding table number. **Valid values**: 1 ~ 512 **Default value**: - **Type**: Optional

5.3.27 show firmware

Description Display firmware update status or partition information. **Note**: the 'Active' status of the firmware partition information means the active partition for next time restart, not current running partition.

Ex.

```
local:%show firmware partition
Current Version:0.73B05
Partition   Version        Date             Status
-----------------------------------------
1           0.73B05        2007/07/10       --
2           0.73B05        2007/07/10       Active
```

Syntax show firmware {status | partition}

Parameter None

5.3.28 show help

Description Display Help

Syntax show help

Parameter None

5.3.29 show http

Description Display HTTP Web port

Syntax show http

Parameter None

5.3.30 show igmp

Description Display IGMP information

Syntax show igmp

Parameter None

5.3.31 show igmp group

Description Display IGMP VLAN group list

Syntax show igmp group list

show igmp group ip <ipv4 address> vlan <VLAN ID>

show igmp group ip <ipv4 address> vlan <VLAN ID> src list

show igmp group ip <ipv4 address> vlan <VLAN ID> src <ipv4 address>

Parameter

Name	Description
ipv4 address	IGMP group address **Valid values**: 224.0.0.0 ~ 239.255.255.255 The range of addresses from 224.0.0.0 to 224.0.0.255 is reserved for the use of routing protocols and other low-level topology discovery or maintenance protocols. **Default value**: - **Type**: Mandatory
VLAN ID	VLAN ID. **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory

5.3.32 show igmp rtport

Description Display all IGMP router port list or by VLAN ID

Syntax show igmp rtport [vlan <VLAN ID>]

Parameter

Name	Description
VLAN ID	VLAN ID. **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory

5.3.33 show igmp-acl bind gigabit

Description Display IGMP ACL bind status for gigabit interface

Syntax show igmp-acl bind gigabit <port>

Parameter

Name	Description
port	Gigabit Ethernet port number **Valid values:** 1~2 **Default value**: - **Type**: Optional

5.3.34 show igmp-acl bind gigabit la

Description Display IGMP ACL bind status for link aggregation gigabit interface

Syntax show igmp-acl bind gigabit la

Parameter None

5.3.35 show igmp-acl bind xdsl

Description Display IGMP ACL bind status for xdsl bridge port

Syntax show igmp-acl bind xdsl <port>

Parameter

Name	Description
port	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.36 show interface xdsl {all | <port>} adsl carrier fe ds snr

Description Display carrier information of far-end snr downstream by Bridge port (the xdsl port must be in diagnostic mode and the test is completed)

Syntax show interface xdsl {all | <port>} adsl carrier fe ds snr

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.37 show interface xdsl {all | <port>} adsl carrier fe ds qln

Description Display carrier information of far-end qln downstream by Bridge port (the xdsl port must be in diagnostic mode and the test is completed)

Syntax show interface xdsl {all | <port>} adsl carrier fe ds qln

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.38 show interface xdsl {all | <port>} adsl carrier fe ds hlin

Description Display carrier information of far-end hlin downstream by Bridge port (the xdsl port must be in diagnostic mode and the test is completed)

Syntax show interface xdsl {all | <port>} adsl carrier fe ds hlin

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.39 show interface xdsl {all | <port>} adsl carrier fe ds hlog

Description Display carrier information of far-end hlog downstream by Bridge port (the xdsl port must be in diagnostic mode and the test is completed)

Syntax show interface xdsl {all | <port>} adsl carrier fe ds hlog

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.40 show interface xdsl {all | <port>} adsl carrier fe us load

Description Display carrier information of far-end load upstream by Bridge port

Syntax show interface xdsl {all | <port>} adsl carrier fe us load

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.41 show interface xdsl {all | <port>} adsl carrier fe us gain

Description Display carrier information of far-end gain upstream by Bridge port

Syntax show interface xdsl {all | <port>} adsl carrier fe us gain

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.42 show interface xdsl {all | <port>} adsl carrier fe us tss

Description Display carrier information of far-end tss upstream by Bridge port (the xdsl port must be in diagnostic mode and the test is completed)

Syntax show interface xdsl {all | port>} adsl carrier fe us tss

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.43 show interface xdsl {all | <port>} adsl carrier ne us snr

Description Display carrier information of near-end snr upstream by Bridge port (the xdsl port must be in diagnostic mode and the test is completed)

Syntax show interface xdsl {all | <port>} adsl carrier ne us snr

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.44 show interface xdsl {all | <port>} adsl carrier ne us qln

Description Display carrier information of near-end qln upstream by Bridge port (the xdsl port must be in diagnostic mode and the test is completed)

Syntax show interface xdsl {all | <port>} adsl carrier ne us qln

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.45 show interface xdsl {all | <port>} adsl carrier ne us hlin

Description Display carrier information of near-end hlin upstream by Bridge port (the xdsl port must be in diagnostic mode and the test is completed)

Syntax show interface xdsl {all | <port>} adsl carrier ne us hlin

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.46 show interface xdsl {all | <port>} adsl carrier ne us hlog

Description Display carrier information of near-end hlog upstream by Bridge port (the xdsl port must be in diagnostic mode and the test is completed)

Syntax show interface xdsl {all | <port>} adsl carrier ne us hlog

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.47 show interface xdsl {all | <port>} adsl carrier ne ds load

Description Display carrier information of near-end load downstream by Bridge port

Syntax show interface xdsl {all | <port>} adsl carrier ne ds load

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.48 show interface xdsl {all | <port>} adsl carrier ne ds gain

Description Display carrier information of near-end gain downstream by Bridge port

Syntax show interface xdsl {all | <port>} adsl carrier ne ds gain

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.49 show interface xdsl {all | <port>} adsl carrier ne ds tss

Description Display carrier information of near-end tss downstream by Bridge port (the xdsl port must be in diagnostic mode and the test is completed)

Syntax show interface xdsl {all | <port>} adsl carrier ne ds tss

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.50 show interface xdsl {all | <port>} adsl channel

Description Display xDSL line channel information by Bridge port

Syntax show interface xdsl {all | <port>} adsl channel

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.51 show interface xdsl {all | <port>} adsl failure

Description Display xDSL failure by Bridge port

Syntax show interface xdsl {all | <port>} adsl failure

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.52 show interface xdsl {all | <port>} adsl line

Description Display xDSL line status by Bridge port

Syntax show interface xdsl {all | <port>} adsl line

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.53 show interface xdsl {all | <port>} adsl line config

Description Display xDSL line configuration information by Bridge port

Syntax show interface xdsl {all | <port>} adsl line config

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.54 show interface xdsl {all | <port>} adsl line delt-test

Description Display xDSL line DELT test information by Bridge port

Syntax show interface xdsl {all | <port>} adsl line delt-test

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.55 show interface xdsl {all | <port>} adsl line information

Description Display xDSL line information by Bridge port

Syntax show interface xdsl {all | <port>} adsl line information

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.56 show interface xdsl {all | <port>} adsl inventory

Description Display xDSL inventory by Bridge port

Syntax show interface xdsl {all | <port>} adsl inventory

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.57 show interface xdsl {all | <port>} adsl operational

Description Display xDSL far-end/near-end operational information by Bridge port

Syntax show interface xdsl {all | <port>} adsl operational {fe | ne}

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.58 show interface xdsl {all | <port>} bridge

Description Display Bridge information by Bridge port

Syntax show interface xdsl {all | <port>} bridge

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.59 show interface xdsl {all | <port>} cellcount

Description Display ATM cell counter by Bridge port

Syntax show interface xdsl {all | <port>} cellcount

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.60 show interface xdsl {all | <port>} counter

Description Display Ethernet packet counter by Bridge port

Syntax show interface xdsl {all | <port>} counter

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.61 show interface xdsl {all | <port>} ipoa

Description Display IPoA (RFC 2684) information by Bridge port

Syntax show interface xdsl {all | <port>} ipoa

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.62 show interface xdsl {all | <port>} vc

Description Display VC information by Bridge port

Syntax show interface xdsl {all | <port>} vc

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.63 show interface xdsl {all | <port>} vlan

Description Display VLAN information by Bridge port

Syntax show interface xdsl {all | <port>} vlan

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.64 show interface bridge

Description Display All interface Bridge information

Syntax show interface bridge

Parameter None

5.3.65 show interface counter

Description Display All interface Ethernet packet counter

Syntax show interface counter

Parameter None

5.3.66 show interface gigabit [<port>] bridge

Description Display Bridge information of all Gigabit Ethernet interfaces or by Gigabit Ethernet port

Syntax show interface gigabit [<port>] bridge

Parameter

Name	Description
port	Gigabit Ethernet port number **Valid values:** 1~2 **Default value**: - **Type**: Optional

5.3.67 show interface gigabit [<port>] counter

Description Display Gigabit Ethernet counter of all Gigabit Ethernet interfaces or by Gigabit Ethernet port

Syntax show interface gigabit [<port>] counter

Parameter

Name	Description
port	Gigabit Ethernet port number **Valid values:** 1~2 **Default value**: - **Type**: Optional

5.3.68 show interface gigabit [<port>] stp

Description Display Port Spanning Tree status of all Gigabit Ethernet interfaces or by Gigabit Ethernet port

Syntax show interface gigabit [<port>] stp

Parameter

Name	Description
port	Gigabit Ethernet port number **Valid values:** 1~2 **Default value**: - **Type**: Optional

5.3.69 show interface gigabit [<port>] vlan

Description Display VLAN information of all Gigabit Ethernet interface or by Gigabit Ethernet port

Syntax show interface gigabit [<port>] vlan

Parameter

Name	Description
port	Gigabit Ethernet port number **Valid values:** 1~2 **Default value**: - **Type**: Optional

5.3.70 show interface gigabit la bridge

Description Display link aggregation gigabit Ethernet bridge information

Syntax show interface gigabit la bridge

Parameter None

5.3.71 show interface gigabit la counter

Description Display link aggregation gigabit Ethernet counter

Syntax show interface gigabit la counter

Parameter None

5.3.72 show interface gigabit la lacp

Description Display gigabit Ethernet aggregator port information

Syntax show interface gigabit la lacp

Parameter None

5.3.73 show interface gigabit la vlan

Description Display link aggregation Gigabit Ethernet vlan information

Syntax show interface gigabit la vlan

Parameter None

5.3.74 show lacp

Description Display LACP information

Syntax show lacp

Parameter None

5.3.75 show mac-spoofing-detect config

Description Display MAC Spoofing Detect configuration

Syntax show mac-spoofing-detect config

Parameter None

5.3.76 show mac-spoofing-detect log

Description Display MAC Spoofing Detect log

Syntax show mac-spoofing-detect log

Parameter None

5.3.77 show management all

Description Display all system management port ip setting

Syntax show management all

Parameter None

5.3.78 show management dhcp

Description Display DHCP client setting

Syntax show management dhcp

Parameter None

5.3.79 show management gbe

Description Display GBE management port ip setting

Syntax show management gbe

Parameter None

5.3.80 show management mgmt

Description Display MGMT management port ip setting

Syntax show management mgmt

Parameter None

5.3.81 show pm <port> adsl day

Description Display performance monitoring data for previous 1 day or current day

Syntax show pm <port> adsl day {<number> | current}

Parameter

Name	Description
port	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory
number	Day number **Valid values:** 1~1 **Default value**: - **Type**: Mandatory

5.3.82 show pm <port> adsl interval

Description Display performance monitoring data for previous 1~96 intervals or current interval

Syntax show pm <port> adsl interval {<number> | current}

Parameter

Name	Description
port	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory
number	Interval number **Valid values:** 1~96 **Default value**: - **Type**: Mandatory

5.3.83 show port-template parameter

Description Display parameter mask. That is, display which profiles (or function) of the template port are selected to be duplicated to other ports. Mask means selected; Unmask means not-selected.

Syntax show port-template parameter

Parameter None

5.3.84 show priority-list ds

Description Display differentiated services priority list

Syntax show priority-list ds [<number>]

Parameter

Name	Description
number	Differentiate services priority list number. **Valid values**: 1 ~ 256 **Default value**: - **Type**: Optional

5.3.85 show priority-list dstip

Description Display destination IP address priority list

Syntax show priority-list dstip [<number>]

Parameter

Name	Description
number	Destination IP address priority list number. **Valid values**: 1 ~ 256 **Default value**: - **Type**: Optional

5.3.86 show priority-list dstmac

Description Display destination MAC address priority list

Syntax show priority-list dstmac [<number>]

Parameter

Name	Description
number	Destination MAC address priority list number. **Valid values**: 1 ~ 256 **Default value**: - **Type**: Optional

5.3.87 show priority-list ethertype

Description Display specific Ether Type VLAN priority list

Syntax show priority-list ethertype [<number>]

Parameter

Name	Description
number	Ether Type priority list number. **Valid values**: 1 ~ 256 **Default value**: - **Type**: Optional

5.3.88 show priority-list ipprotocol

Description Display IP Protocol VLAN priority list

Syntax show priority-list ipprotocol [<number>]

Parameter

Name	Description
number	IP Protocol VLAN priority list number. **Valid values**: 1 ~ 256 **Default value**: - **Type**: Optional

5.3.89 show priority-list srcip

Description Display source IP address priority list

Syntax show priority-list srcip [<number>]

Parameter

Name	Description
number	Source IP address priority list number. **Valid values**: 1 ~ 256 **Default value**: - **Type**: Optional

5.3.90 show priority-list srcmac

Description Display source MAC address priority list

Syntax show priority-list srcmac [<number>]

Parameter

Name	Description
number	Source MAC address priority list number. **Valid values**: 1 ~ 256 **Default value**: - **Type**: Optional

5.3.91 show priority-list tos

Description Display ToS (IP Precedence) priority list

Syntax show priority-list tos [<number>]

Parameter

Name	Description
number	ToS (IP Precedence) priority list number. **Valid values**: 1 ~ 256 **Default value**: - **Type**: Mandatory

5.3.92 show priority-list vlanid

Description Display VLAN ID priority list

Syntax show priority-list vlanid [<number>]

Parameter

Name	Description
number	VLAN ID priority list number. **Valid values**: 1 ~ 256 **Default value**: - **Type**: Mandatory

5.3.93 show priority-queue config

Description Display Priority and Queue mapping configuration

Syntax show priority-queue config

Parameter None

5.3.94 show priority-regen

Description Display VLAN priority tag filter

Syntax show priority-regen

Parameter None

5.3.95 show profile alarm all

Description Display alarm profile

Syntax show profile alarm all

Parameter None

5.3.96 show profile igmp-acl

Description Display IGMP ACL profile

Syntax show profile igmp-acl <number>

Parameter

Name	Description
<number>	Profile index **Valid values:** 1~15 **Default value**: - **Type**: Mandatory

5.3.97 show profile rate-limit policer

Description Display rate limit policer information

Syntax show profile rate-limit policer

Parameter None

5.3.98 show profile service adsl

Description Display ADSL service profile

Syntax show profile service adsl {<number> | all}

Parameter

Name	Description
<number>	Profile index **Valid values:** 1~120 **Default value**: - **Type**: Optional

5.3.99 show profile spectrum adsl

Description Display ADSL service profile

Syntax show profile service adsl {<number> | all}

Parameter

Name	Description
<number>	Profile index **Valid values:** 1~120 **Default value**: - **Type**: Optional

5.3.100 show profile tca adsl

Description Display one specified threshold crossing alert profile or all profiles

Syntax show profile tca adsl {<index> | all}

Parameter

Name	Description
<index>	Profile index **Valid values:** 1~64 **Default value**: - **Type**: Mandatory

5.3.101 show rmon alarm

Description Display RMON alarm information

Syntax show rmon alarm {all | <number>}

Parameter

Name	Description
number	RMON alarm entry index. **Valid values**: 1 ~ 64 **Default value**: - **Type**: Mandatory

5.3.102 show rmon ether_history

Description Display RMON Ether history information

Syntax show rmon ether_history <number>

Parameter

Name	Description
number	RMON index. **Valid values**: 1 ~ 10 **Default value**: - **Type**: Mandatory

5.3.103 show rmon event

Description Display RMON event information

Syntax show rmon event {all | <number>}

Parameter

Name	Description
number	RMON event entry index. **Valid values**: 1 ~ 128 **Default value**: - **Type**: Mandatory

5.3.104 show rmon history

Description Display RMON history control information

Syntax show rmon history {all | <number>}

Parameter

Name	Description
number	RMON history control entry index. **Valid values**: 1 ~ 10 **Default value**: - **Type**: Mandatory

5.3.105 show rmon log

Description Display RMON log

Syntax show rmon log

Parameter None

5.3.106 show rmon statistic

Description Display RMON statistic information

Syntax show rmon statistic {all | <number>}

Parameter

Name	Description
number	RMON statistic entry index. **Valid values**: 1 ~ 10 **Default value**: - **Type**: Mandatory

5.3.107 show route

Description Display GBE routing table and default gateway

Syntax show route

Parameter None

5.3.108 show runningcfg

Description Display running config

Syntax show runningcfg

Parameter None

5.3.109 show runningcfg interface xdsl

Description Display running config by XDSL interface

Syntax show runningcfg interface xdsl <port>

Parameter

Name	Description
port	XDSL Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.3.110 show runningcfg interface gigabit

Description Display running config by Gigabit Ethernet interface (or Link aggregation)

Syntax show runningcfg interface gigabit {<port> | la}

Parameter

Name	Description
port	Gigabit port number **Valid values:** 1~2 **Default value**: - **Type**: Mandatory

5.3.111 show snmp

Description Display SNMP community/notify/target setting

Syntax show snmp {community | notify | target}

Parameter None

5.3.112 show sntp

Description Display SNTP setting

Syntax show sntp

Parameter None

5.3.113 show stp

Description Display spanning tree

Syntax show stp

Parameter None

5.3.114 show syslog server

Description Display IP address of the syslog server

Syntax show syslog server

Parameter None

5.3.115 show system

Description Display system information/inventory/name/performance

Syntax show system {information | inventory | name | performance}

Parameter None

5.3.116 show tcm config

Description Display TCM (Three-Color Marking) Policer configuration

Syntax show tcm config

Parameter None

5.3.117 show tcm-policer

Description Display TCM Policer Binding Table

Syntax show tcm-policer

Parameter None

5.3.118 show temperature

Description Display system temperature

Syntax show temperature

Parameter None

5.3.119 show time

Description Display current time

Syntax show time

Parameter None

5.3.120 show uptime

Description Display System up time and CPU loading

Syntax show uptime

Parameter None

5.3.121 show version

Description Display CLI software version

Syntax show version

Parameter None

5.3.122 show version detail

Description Display CLI software version and system information

Syntax show version detail

Parameter None

5.3.123 show vlan

Description Display bridge port member set

Syntax show vlan [<VLAN ID>]

Parameter

Name	Description
<VLAN ID>	VLAN ID. **Valid values:** 1 ~ 4094 **Default value**: - **Type**: Optional

5.3.124 show vlan ethertype

Description Show VLAN S-Tag Ether type

Syntax show vlan ethertype

Parameter None

5.3.125 show vlan protocol-base

Description Display protocol based VLAN table

Syntax show vlan ethertype

Parameter None

5.3.126 show vlan-translation one-to-one

Description Display one-to-one VLAN translation table

Syntax show vlan-translation one-to-one

Parameter None

5.3.127 show vlan-translation many-to-one

Description Display many-to-one VLAN translation table

Syntax show vlan-translation many-to-one

Parameter None

5.3.128 telnet

Description Telnet to a destination (if you're connecting to the DSLAM through its console port, this command is not provided)

Syntax telnet <target address>

Parameter

Name	Description
target address	IPV4 address or hostname **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: - **Type**: Mandatory

5.3.129 traceroute

Description Trace route (and not use ICMP ECHO instead of UDP datagrams)

Syntax traceroute <target address> [no_icmp]

Parameter

Name	Description
target address	IPV4 address **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: - **Type**: Mandatory

5.4 Configure Mode Commands

The commands in this section can be executed only in the Configure execution mode.

5.4.1 access-list

Description Go to access-list execution mode from Configure mode.

Syntax access-list

Parameter None

5.4.2 account add

Description Add new account

Syntax account add <name>

account add <name> password <password> comment <comment>

account add <name> password <password> level <level> [comment <comment>]

account add <name> password <password> password-expiration <day number>

Parameter

Name	Description
<name>	ID name (max 31 characters). Only 0-9, a-z, A-Z, and symbol "_-." are accepted for account name. For example, abc_12_XYZ-10.1 is a valid user name. Note that the VX-1000HDX does not accept user names beginning with a digital number. For example, 123abc or 123456 are not a valid name. **Default value**: - **Type**: Mandatory
<password>	Input password (max 31 characters) **Default value**: space char **Type**: Optional
<level>	Set access level **Valid values**: superuser, engineer, guest **Default value**: guest **Type**: Optional
<comment>	Set comment (max 31 characters) **Default value**: space char **Type**: Optional
<day number>	Set password expiration days (0:disable) **Default value**: - **Type**: Optional

5.4.3 account delete

Description Delete account

Syntax account delete <name>

Parameter

Name	Description
<name>	ID name (max 31 characters) **Default value**: - **Type**: Mandatory

5.4.4 account modify

Description Modify account

Syntax account modify <name> comment <comment>

account modify <name> password <password> [{ level <level> [comment <comment>] | comment <comment> | password-expiration <day number> }]

account modify <name> level <level> [comment <comment>]

account modify <name> password-expiration <day number>

Parameter

Name	Description
<name>	ID name (max 31 characters) **Default value**: - **Type**: Mandatory
<password>	Input password (max 31 characters) **Default value**: space char **Type**: Optional
<level>	Set access level **Valid values**: superuser, engineer, guest **Default value**: guest **Type**: Optional
<comment>	Set comment (max 31 characters) **Default value**: space char **Type**: Optional
day number	Set password expiration days (0:disable) **Default value**: - **Type**: Optional

5.4.5 aging

Description Bridge aging time

Syntax aging <number>

Parameter

Name	Description
number	Aging time (sec). **Valid values:** (10~1000000) sec. **Default value**: 300 **Type**: Mandatory

5.4.6 alarm aco active

Description Set ACO active

Syntax alarm aco active

Parameter None

5.4.7 alarm event clear

Description Clear alarm event log

Syntax alarm event clear

Parameter None

5.4.8 alarm history clear

Description Clear alarm history

Syntax alarm history clear

Parameter None

5.4.9 atmdesc

Description Go to ATM-description execution mode from Configure mode

Syntax atmdesc

Parameter None

5.4.10 atm-loopback

Description ATM loopback testing OAM Cell Generation enable / OAM Cell Generation disable / Set ATM loopback type or clear loopback status for a PVC

Syntax atm-loopback enable

atm-loopback disable

atm-looback <port>/<pvc> {type <type> | clear}

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values:** 1~8 **Default value**: - **Type**: Mandatory
<type>	ATM loopback type **Valid values:** f5-e2e, f5-segment **Default value**: - **Type**: Mandatory

5.4.11 cli-config session

Description Set CLI max number of connection sessions

Syntax cli-config session <number>

Parameter

Name	Description
<number>	Set CLI max number of connection sessions **Valid values**: 1~10 **Default value**: 5 **Type**: Mandatory

5.4.12 cli-config timeout

Description Set CLI configuration timeout value

Syntax cli-config timeout <number>

Parameter

Name	Description
<number>	Set CLI connection timeout value **Valid values**: 180~3600 (sec) **Default value**: 300 (sec) **Type**: Mandatory

5.4.13 cluster-cfg domain

Description Set cluster domain name

Syntax cluster-cfg domain <string>

Parameter

Name	Description
<string>	Cluster domain name **Valid values**: (max length 31) **Default value**: - **Type**: Mandatory

5.4.14 cluster-cfg management

Description Set cluster management IP configuration

Syntax cluster-cfg management {ip <ipv4 address> | netmask <netmask> | gateway <ipv4 address>}

Parameter

Name	Description
<ipv4 address>	IP address. **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: 0.0.0.0 **Type**: Mandatory
<netmask>	Netmask of the management port. **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: - **Type**: Optional

5.4.15 cluster-cfg name

Description Set the NE name in a cluster

Syntax cluster-cfg name <string>

Parameter

Name	Description
<string>	A name for NE Identification. **Valid values**: (max length 31) **Default value**: - **Type**: Mandatory

5.4.16 cluster-cfg role

Description Set cluster role to System-decide or Slave only or Not in a cluster (default)

Syntax cluster-cfg role {cluster | slave-only | individual}

Parameter None

5.4.17 cluster-cfg voting-key

Description Set cluster voting-key for the priority to be a Master

Syntax cluster-cfg voting-key <number>

Parameter

Name	Description
<number>	Cluster voting key. **Valid values**: 0 ~ 4294967295 **Default value**: 0 **Type**: Mandatory

5.4.18 dsl-line-identify dhcp

Description Set DHCP Relay Option82 enable/disable

Syntax dsl-line-identify dhcp {enable | disable}

Parameter None

5.4.19 dsl-line-identify dhcp option82 circuit

Description Set DHCP Option82 Circuit ID type (default type is <DSLAM name>:<circuit number>:<vpi>:<vci>, or customer-defined type)

Syntax dsl-line-identify dhcp option82 circuit {default | customer}

Parameter None

5.4.20 dsl-line-identify dhcp option82 dslam-name

Description Set DSLAM name

Syntax dsl-line-identify dhcp option82 dslam-name <string>

Parameter

Name	Description
<string>	Set DSLAM name (max length 15) **Default value**: - **Type**: Mandatory

5.4.21 dsl-line-identify dhcp option82 dslam-name-cluster

Description Set DSLAM name by Cluster name

Syntax dsl-line-identify dhcp option82 dslam-name-cluster

Parameter None

5.4.22 dsl-line-identify dhcp option82 dslam-name-customer

Description Set DSLAM name by customer defined

Syntax dsl-line-identify dhcp option82 dslam-name-customer

Parameter None

5.4.23 dsl-line-identify dhcp option82 sub

Description Set DHCP Option82 sub mode (send Circuit ID/send Remote ID/send Both)

Syntax dsl-line-identify dhcp option82 sub {circuit | remote | both}

Parameter None

5.4.24 dsl-line-identify dhcp option82 remote

Description Set Remote ID type as Default / Line ID / Line Description / Line phone number / Customer (default type is <DSLAM name>:<bridge port index>; customer type means the customer-defined type)

Syntax dsl-line-identify dhcp option82 remote {default | line-id | line-descr | line-phone | customer}

Parameter None

5.4.25 dsl-line-identify pppoe srv-name

Description Set Service Name

Syntax dsl-line-identify pppoe srv-name <string>

Parameter

Name	Description
<string>	Set Service name **Default value**: - **Type**: Mandatory

5.4.26 dsl-line-identify pppoe srv-name-check

Description Disable/Enable PPPoE Service Name check

Syntax dsl-line-identify pppoe srv-name-check {disable | enable}

Parameter None

5.4.27 fdbstatic <number> {xdsl | gigabit}

Description Static MAC forwarding table setting

Syntax fdbstatic <number> xdsl <port>/<pvc> vlan <VLAN ID> mac <mac address> {deny | pass}

fdbstatic <number> gigabit {<port> | la} vlan <VLAN ID> mac <mac address> {deny | pass}

Parameter

Name	Description
<number>	Static MAC forwarding table number **Valid values**: 1~512 **Default value**: - **Type**: Mandatory
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<VLAN ID>	VLAN ID **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory
<mac address>	MAC address **Valid values**: xx:xx:xx:xx:xx:xx (xx:00~ff) **Default value**: - **Type**: Mandatory

5.4.28 fdbstatic <number> disable

Description Disable specify static MAC forwarding entry

Syntax fdbstatic <number> disable

Parameter

Name	Description
<number>	Static MAC forwarding table number **Valid values**: 1~512 **Default value**: - **Type**: Mandatory

5.4.29 fdbstatic list

Description Show static MAC forwarding table or specified static MAC forwarding entry

Syntax fdbstatic [<number>] list

Parameter

Name	Description
<number>	Static MAC forwarding table number **Valid values**: 1~512 **Default value**: - **Type**: Optional

5.4.30 firmware bootcode-upgrade

Description Get bootcode from FTP server and write to Flash ROM

Syntax firmware bootcode-upgrade <filename>

Parameter

Name	Description
<filename>	Boot code path and file name (max 31 characters) **Default value**: - **Type**: Mandatory

5.4.31 firmware login

Description Login FTP server that firmware image belongs to

Syntax firmware login <ipv4 address> username <name> password <password>

Parameter

Name	Description
<ipv4 address>	IPV4 address **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: - **Type**: Mandatory
<name>	User name (max 31 characters) **Default value**: - **Type**: Mandatory
<password>	Input password (max 31 characters) **Default value**: - **Type**: Mandatory

5.4.32 firmware partition

Description Set booting partition

Syntax firmware partition <number>

Parameter

Name	Description
<number>	Partition number **Valid values**: 1~2 **Default value**: - **Type**: Mandatory

5.4.33 firmware upgrade

Description Get firmware image from FTP server and write to Flash ROM

Syntax firmware upgrade <filename>

Parameter

Name	Description
<filename>	Path and File name (max 31 characters) **Default value**: - **Type**: Mandatory

5.4.34 http port

Description Set http server listening port

Syntax http port <port number>

Parameter

Name	Description
port number	The port number. **Valid values**: Integer range 0-65535 **Default value**: 80 **Type**: Mandatory

5.4.35 igmp acl

Description IGMP ACL control mode

Syntax igmp acl {enable | disable}

Parameter None

5.4.36 igmp default

Description IGMP set default

Syntax igmp [default]

Parameter None

5.4.37 igmp deny no-router-alert

Description Enable or disable the function that the system will deny IGMP packets that have no router alert option in their IP header. Default is “disable”; the system doesn’t care router alert option.

Syntax igmp deny no-router-alert {enable | disable}

Parameter None

5.4.38 igmp disable

Description Disable snooping mode and proxy mode

Syntax igmp disable

Parameter None

5.4.39 igmp max-group-limit

Description Enable or disable the function that maximum active counter of IGMP groups can be joined for every bridge port will be limited.

Syntax igmp max-group-limit {enable | disable}

Parameter None

5.4.40 igmp proxy

Description Enable GMP proxy snooping mode

Syntax igmp proxy

Parameter None

5.4.41 igmp snooping

Description Enable IGMP normal snooping mode

Syntax igmp snooping

Parameter None

5.4.42 igmp rtport gigabit

Description Set IGMP router port (giga1, giga2, or link aggregation port) and set IGMP router IP address

Syntax igmp rtport gigabit {<port> | la} vlan <VLAN ID> [disable | ip <ipv4 address>]

Parameter

Name	Description
<port>	Port number **Valid values**: 1-2 **Default value**: - **Type**: Mandatory
<VLAN ID>	VLAN ID **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory
<ipv4 address>	Set router IP address for proxy mode IGMP general query packet reference. **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: 0.0.0.0 **Type**: Optional

5.4.43 igmp rtport list

Description Show IGMP router port list

Syntax igmp rtport list [<VLAN ID>]

Parameter

Name	Description
<VLAN ID>	VLAN ID **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory

5.4.44 igmp timeout

Description IGMP timeout setting (BC/LMQT/MRT/Query/URI)

Syntax igmp timeout {bc | lmqt | mrt | query | uri} <number>

Parameter

Name	Description
<number>	Timeout value **Valid values**: 1~500 (second) **Default value**: BC: 400 LMQT: 1 MRT: 10 Query: 125 URI: 1 **Type**: Mandatory

5.4.45 igmp version

Description Set IGMP protocol version

Syntax igmp version {v1 | v2 | v3}

Parameter None

5.4.46 interface gigabit

Description Go to Gigabit Ethernet Interface execution mode from Configure mode

Syntax interface gigabit <port>

Parameter

Name	Description
<port>	Gigabit Ethernet port number **Valid values:** 1~2 **Default value**: - **Type**: Mandatory

5.4.47 interface gigabit la

Description Go to Gigabit Ethernet link aggregation Interface execution mode from Configure mode

Syntax interface gigabit la

Parameter None

5.4.48 interface xdsl

Description Go to xDSL Interface execution mode from Configure mode

Syntax interface xdsl <port>

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.4.49 mac-spoofing-detect

Description Enable/Disable MAC spoofing detection

Syntax mac-spoofing-detect {enable | disable}

Parameter None

5.4.50 mac-spoofing-detect log

Description Enable/Disable MAC spoofing detection log

Syntax mac-spoofing-detect log {enable | disable}

Parameter None

5.4.51 management dhcp

Description Enable DHCP client / Disable DHCP client / Use DHCP to request and obtain IP address again

Syntax management dhcp {enable | disable | renew}

Parameter None

5.4.52 management dhcp timeout

Description Set DHCP client timeout value

Syntax management dhcp timeout <number>

Parameter

Name	Description
<number>	DHCP timeout. **Valid values:** 0~4294967295 (sec) **Default value**: 60 **Type**: Mandatory

5.4.53 management dhcp leasetime

Description Set DHCP client lease time value

Syntax management dhcp leasetime <number>

Parameter

Name	Description
<number>	DHCP leasetime. **Valid values:** 0~4294967295 (sec) **Default value**: 4294967295 **Type**: Mandatory

5.4.54 management gbe

Description Set GBE port IP address

Syntax management gbe <ipv4 adderss> [netmask <netmask>]

Parameter

Name	Description
ipv4 address	IP address. **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: 0.0.0.0 **Type**: Mandatory
netmask	Netmask of the management port. **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: - **Type**: Optional

5.4.55 management gbe vlan

Description Set incoming VLAN tag management (only allowing incoming packets with the specified VLAN ID or no limit of VLAN ID)

Syntax management gbe vlan <VLAN ID> {no-limit | <VLAN ID>}

Parameter

Name	Description
<VLAN ID>	VLAN ID **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory

5.4.56 management gbe vlan priority

Description Set priority level of the inband management traffic sent out from GBE port

Syntax management gbe vlan priority <prio ID>

Parameter

Name	Description
<prio ID>	Priority ID **Valid values**: 0 ~ 7 **Default value**: 0 **Type**: Mandatory

5.4.57 management mgmt

Description Set MGMT management port IP address

Syntax management mgmt <ipv4 adderss> [netmask <netmask>]

Parameter

Name	Description
ipv4 address	IP address with classful netmask. **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: 0.0.0.0 **Type**: Mandatory
netmask	Netmask of the management port. **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: - **Type**: Optional

5.4.58 pm clear

Description Clear current performance monitoring data.

Syntax pm clear <port>

Parameter

Name	Description
<port>	Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.4.59 port-template mask

Description Mask the function (profile) of template line port. Mask means to select this item to be copied to other ports.

Syntax port-template mask {xdsl-lineconf | xdsl-profile | xdsl-adminstatus | dsl-dentify-trust | pvc-vlan-bridge | igmp-acl | filter | priority-remark | priority-regen | ethernet-policer}

Parameter None

5.4.60 port-template unmask

Description Unmask the function (profile) of template line port. Un-Mask means not to select this item to be copied to other ports.

Syntax port-template unmask {xdsl-lineconf | xdsl-profile | xdsl-adminstatus | dsl-dentify-trust | pvc-vlan-bridge | igmp-acl | filter | priority-remark | priority-regen | ethernet-policer}

Parameter None

5.4.61 port-template template-port

Description Select the template line port and pasted line port (copy configuration from template port)

Syntax port-template template-port <port> paste-port <port>

Parameter

Name	Description
<port>	XDSL Port number **Valid values:** 1~48 **Default value**: - **Type**: Mandatory

5.4.62 priority-list

Description Go to Priority-list execution mode from Configure mode.

Syntax priority-list

Parameter None

5.4.63 priority-queue atm priority

Description Set ATM interface priority queue mapping

Syntax priority-queue atm priority <prio ID> queue <number>

Parameter

Name	Description
<prio ID>	Priority ID **Valid values**: 0 ~ 7 **Default value**: 0 **Type**: Mandatory
<number>	Priority queue value. **Valid values**: 0 ~ 7 **Default value**: - **Type**: Mandatory

5.4.64 priority-queue atm queue0-weight

Description Set weight value of ATM Priority Queue 0

Syntax priority-queue atm queue0-weight <number>

Parameter

Name	Description
<number>	Weight value of ATM Priority Queue 0 **Valid values**: 1 ~ 255 **Default value**: 10 **Type**: Mandatory

5.4.65 priority-queue atm queue1-weight

Description Set weight value of ATM Priority Queue 1

Syntax priority-queue atm queue1-weight <number>

Parameter

Name	Description
<number>	Weight value of ATM Priority Queue 1 **Valid values**: 1 ~ 255 **Default value**: 20 **Type**: Mandatory

5.4.66 priority-queue atm queue2-weight

Description Set weight value of ATM Priority Queue 2

Syntax priority-queue atm queue2-weight <number>

Parameter

Name	Description
<number>	Weight value of ATM Priority Queue 2 **Valid values**: 1 ~ 255 **Default value**: 30 **Type**: Mandatory

5.4.67 priority-queue atm queue3-weight

Description Set weight value of ATM Priority Queue 3

Syntax priority-queue atm queue3-weight <number>

Parameter

Name	Description
<number>	Weight value of ATM Priority Queue 3 **Valid values**: 1 ~ 255 **Default value**: 40 **Type**: Mandatory

5.4.68 priority-queue atm scheduling

Description Set priority queue scheduling only support SPQ mode or support SQP and WFQ modes

Syntax priority-queue atm scheduling {sqp | spq-wfq}

Parameter None

5.4.69 priority-queue gigabit priority

Description Set gigabit interface priority queue mapping

Syntax priority-queue atm priority <prio ID> queue <number>

Parameter

Name	Description
<prio ID>	Priority ID **Valid values**: 0 ~ 7 **Default value**: 0 **Type**: Mandatory
<number>	Priority queue value. **Valid values**: 0 ~ 3 **Default value**: - **Type**: Mandatory

5.4.70 profile alarm

Description Enter this command to go to alarm profile configuration mode.

Syntax profile alarm

Parameter None

5.4.71 profile igmp-acl

Description Enter this command to go to IGMP ACL profile configuration mode

Syntax profile igmp-acl <profile index>

Parameter

Name	Description
<profile index>	Profile index **Valid values**: 1~15 **Default value**: - **Type**: Mandatory

5.4.72 profile service adsl

Description Enter this command to go to service profile configuration mode or delete a service profile

Syntax profile service adsl <profile index> [disable]

Parameter

Name	Description
<profile index>	Profile index **Valid values**: 2 ~ 120 **Default value**: - **Type**: Mandatory

5.4.73 profile spectrum

Description Enter this command to go to spectrum profile configuration mode or delete a spectrum profile

Syntax profile spectrum {adsl2 | adsl2plus | readsl2} <profile index> [disable]

Parameter

Name	Description
profile index	Profile index **Valid values**: 2 ~ 120 **Default value**: - **Type**: Mandatory

5.4.74 profile tca xdsl

Description Enter this command to go to TCA profile configuration mode or delete the specified TCA profile

Syntax profile tca xdsl <index> [disable]

Parameter

Name	Description
<index>	TCA profile index. **Valid values:** 2~64 **Default value**: - **Type**: Mandatory

5.4.75 profile rate-limit

Description Enter this command to go to rate-limit profile configuration mode

Syntax profile tca xdsl <index> [disable]

Parameter None

5.4.76 remotecfg login

Description Login FTP server to get remote configuration and load it to running configuration or write remote configuration to memory

Syntax remotecfg login <ipv4 address> get <filename> {load | write partition <number>}

Parameter

Name	Description
<ipv4 address>	IP address of TFTP server. **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: - **Type**: Mandatory
<filename>	Remote path and file name (max 31 character) **Default value**: - **Type**: Mandatory
<number>	Partition number **Valid values**: 1~2 **Default value**: - **Type**: Mandatory

5.4.77 restore-factory

Description Restore factory setting (Except out-band IP address and user account, all other configuration will be restored to factory default. User needs to restart the system after restore-factory to make the setting take effect.)

Syntax restore-factory

Parameter None

5.4.78 rmon alarm <index> alarm_interval

Description Set RMON alarm interval

Syntax rmon alarm <index> alarm_interval <number>

Parameter

Name	Description
<index>	RMON alarm entry index **Valid values**: 1~64 **Default value**: - **Type**: Mandatory
<number>	Alarm interval. **Valid values**: 0~2147483647 (0: disable) **Default value**: - **Type**: Mandatory

5.4.79 rmon alarm <index> delete

Description Delete RMON alarm entry

Syntax rmon alarm <index> delete <number>

Parameter

Name	Description
<index>	RMON alarm entry index **Valid values**: 1~64 **Default value**: - **Type**: Mandatory

5.4.80 rmon alarm <index> falling_eventindex

Description Set RMON alarm falling event index

Syntax rmon alarm <index> falling_eventindex <number>

Parameter

Name	Description
<index>	RMON alarm entry index **Valid values**: 1~64 **Default value**: - **Type**: Mandatory
<number>	RMON alarm falling event index **Valid values**: 1~128 **Default value**: - **Type**: Mandatory

5.4.81 rmon alarm <index> falling_threshold

Description Set RMON alarm falling threshold

Syntax rmon alarm <index> falling_threshold <number>

Parameter

Name	Description
<index>	RMON alarm entry index **Valid values**: 1~64 **Default value**: - **Type**: Mandatory
<number>	RMON alarm falling threshold **Valid values**: 0~4294967295 **Default value**: - **Type**: Mandatory

5.4.82 rmon alarm <index> owner

Description RMON alarm owner

Syntax rmon alarm <index> owner <string>

Parameter

Name	Description
<string>	Owner name. **Valid values**: (max 31 characters) **Default value**: - **Type**: Mandatory

5.4.83 rmon alarm <index> rising_eventindex

Description Set RMON alarm rising event index

Syntax rmon alarm <index> rising_eventindex <number>

Parameter

Name	Description
<index>	RMON alarm entry index **Valid values**: 1~64 **Default value**: - **Type**: Mandatory
<number>	RMON alarm rising event index **Valid values**: 1~128 **Default value**: - **Type**: Mandatory

5.4.84 rmon alarm <index> rising_threshold

Description Set RMON alarm rising threshold

Syntax rmon alarm <index> rising_threshold <number>

Parameter

Name	Description
<index>	RMON alarm entry index **Valid values**: 1~64 **Default value**: - **Type**: Mandatory
<number>	RMON alarm rising threshold **Valid values**: 0~4294967295 **Default value**: - **Type**: Mandatory

5.4.85 rmon alarm <index> sample_type

Description RMON alarm sample type (Compared directly with the thresholds or Difference compared with the thresholds)

Syntax rmon alarm <index> sample_type {absolute | delta}

Parameter

Name	Description
<index>	RMON alarm entry index **Valid values**: 1~64 **Default value**: - **Type**: Mandatory

5.4.86 rmon alarm <index> startup_alarm

Description RMON startup alarm (Rising threshold alarm, Falling threshold alarm or Both rising and falling threshold alarm)

Syntax rmon alarm <index> startup_alarm {rising | falling | both}

Parameter

Name	Description
<index>	RMON alarm entry index **Valid values**: 1~64 **Default value**: - **Type**: Mandatory

5.4.87 rmon alarm <index> variable

Description Source sample in statistic table

Variable	Description
rx_broadcast	Monitoring rx broadcast packets
rx_bytes	Monitoring rx bytes packets
rx_dropped	Monitoring rx dropped packets
rx_err_aligment	Monitoring rx error aligment packets
rx_fragments	Monitoring rx fragments packets
rx_jabber	Monitoring rx jabber packets
rx_multicast	Monitoring rx multicast packets
rx_oversize	Monitoring rx oversize packets
rx_packets	Monitoring rx packets
rx_undersize	Monitoring rx undersize packets
tx_single_collision	Monitoring tx single collision packets
txrx_frames_64	Monitoring tx 64 octets
txrx_frames_127	Monitoring tx 65 to 127 octets
txrx_frames_255	Monitoring tx 128 to 255 octets
txrx_frames_511	Monitoring tx 256 to 511 octets
txrx_frames_1023	Monitoring tx 512 to 1023 octets
txrx_frames_1518	Monitoring tx 1024 to 1518 octets

Syntax rmon alarm <index> variable {rx_broadcast | rx_bytes | rx_dropped | rx_err_aligment | rx_fragments | rx_jabber | rx_multicast | rx_oversize | rx_packets | rx_undersize} index <number>

rmon alarm <index> variable {tx_single_collision | txrx_frames_64 | txrx_frames_127 | txrx_frames_255 | txrx_frames_511 | txrx_frames_1023 | txrx_frames_1518} index <number>

Parameter

Name	Description
<index>	RMON alarm entry index **Valid values**: 1~64 **Default value**: - **Type**: Mandatory
<number>	Source index in statistic table **Valid values**: 1~10 **Default value**: - **Type**: Mandatory

5.4.88 rmon event <index> community

Description Set RMON event community

Syntax rmon event <index> community <string>

Parameter

Name	Description
<index>	RMON event entry index **Valid values**: 1~128 **Default value**: - **Type**: Mandatory
<string>	RMON event community **Valid values**: string type value. (max 31 characters) **Default value**: - **Type**: Mandatory

5.4.89 rmon event <index> delete

Description Delete RMON event entry

Syntax rmon event <index> delete

Parameter

Name	Description
<index>	RMON event entry index **Valid values**: 1~128 **Default value**: - **Type**: Mandatory

5.4.90 rmon event <index> description

Description Description for the RMON event

Syntax rmon event <index> description <string>

Parameter

Name	Description
<index>	RMON event entry index **Valid values**: 1~128 **Default value**: - **Type**: Mandatory
<string>	Event description **Valid values**: string type value. (max 31 characters) **Default value**: - **Type**: Mandatory

5.4.91 rmon event <index> owner

Description Set RMON event owner

Syntax rmon event <index> owner <string>

Parameter

Name	Description
<index>	RMON event entry index **Valid values**: 1~128 **Default value**: - **Type**: Mandatory
<string>	Owner name **Valid values**: string type value. (max 31 characters) **Default value**: - **Type**: Mandatory

5.4.92 rmon event <index> type

Description Set RMON event type (no alarm, only syslog, only SNMP trap, or both syslog and SNMP trap)

Syntax rmon event <index> type {none | log | trap | both}

Parameter

Name	Description
<index>	RMON event entry index **Valid values**: 1~128 **Default value**: - **Type**: Mandatory

5.4.93 rmon history <index> buckets_requested

Description Set RMON history buckets requested

Syntax rmon history <index> buckets_requested <number>

Parameter

Name	Description
<index>	RMON history control entry index **Valid values**: 1~10 **Default value**: - **Type**: Mandatory
<number>	Buckets requested value **Valid values**: 1~65535 **Default value**: - **Type**: Mandatory

5.4.94 rmon history <index> delete

Description Delete RMON history entry

Syntax rmon history <index> delete

Parameter

Name	Description
<index>	RMON history control entry index **Valid values**: 1~10 **Default value**: - **Type**: Mandatory

5.4.95 rmon history <index> ifc

Description Set Physical interface

Syntax rmon history <index> ifc <number>

Parameter

Name	Description
<index>	RMON history control entry index **Valid values**: 1~10 **Default value**: - **Type**: Mandatory
<number>	Physical interface index **Valid values**: 1~2 **Default value**: - **Type**: Mandatory

5.4.96 rmon history <index> interval

Description Set RMON history interval

Syntax rmon history <index> interval <number>

Parameter

Name	Description
<index>	RMON history control entry index **Valid values**: 1~10 **Default value**: - **Type**: Mandatory
<number>	History interval **Valid values**: 1~3600 (sec) **Default value**: - **Type**: Mandatory

5.4.97 rmon history <index> owner

Description Set RMON history owner

Syntax rmon history <index> owner <string>

Parameter

Name	Description
<index>	RMON history control entry index **Valid values**: 1~10 **Default value**: - **Type**: Mandatory
<string>	Owner name **Valid values**: string type value. (max 31 characters) **Default value**: - **Type**: Mandatory

5.4.98 rmon statistic <index> delete

Description Delete RMON statistic entry

Syntax rmon statistic <index> delete

Parameter

Name	Description
<index>	RMON statistic entry index **Valid values**: 1~10 **Default value**: - **Type**: Mandatory

5.4.99 rmon statistic <index> ifc

Description Set Physical interface

Syntax rmon statistic <index> ifc <number>

Parameter

Name	Description
<index>	RMON history control entry index **Valid values**: 1~10 **Default value**: - **Type**: Mandatory
<number>	Physical interface index **Valid values**: 1~2 **Default value**: - **Type**: Mandatory

5.4.100 rmon statistic <index> owner

Description Set RMON statistic owner

Syntax rmon statistic <index> owner <string>

Parameter

Name	Description
<index>	RMON history control entry index **Valid values**: 1~10 **Default value**: - **Type**: Mandatory
<string>	Owner name **Valid values**: string type value. (max 31 characters) **Default value**: - **Type**: Mandatory

5.4.101 route

Description Add routing to route table

Syntax route <ipv4 address > netmask <ipv4 address > gateway <ipv4 address >

Parameter

Name	Description
<ipv4 address>	IP address. **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: - **Type**: Mandatory

5.4.102 route default

Description Set default route

Syntax route default <ipv4 address>

Parameter

Name	Description
<ipv4 address>	Default route IP address. **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: - **Type**: Mandatory

5.4.103 route delete

Description Delete routing from route table

Syntax route delete <ipv4 address> netmask <ipv4 address>

Parameter

Name	Description
<ipv4 address>	IP address. **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: - **Type**: Mandatory

5.4.104 runningcfg active partition

Description There are two memory partitions for storing the configuration data. This command allows you to select the flash boot point (partition) for next power-on.

Syntax runningcfg active partition <number>

Parameter

Name	Description
<number>	Partition number **Valid values**: 1~2 **Default value**: - **Type**: Mandatory

5.4.105 runningcfg load partition

Description Load running configuration from memory

Syntax runningcfg load partition <number>

Parameter

Name	Description
<number>	Partition number **Valid values**: 1~2 **Default value**: - **Type**: Mandatory

5.4.106 runningcfg login

Description Login FTP server

Syntax runningcfg login <ipv4 address> put <filename>

Parameter

Name	Description
<ipv4 address>	IP address of TFTP server. **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: - **Type**: Mandatory
<filename>	Path and File name (max 31 characters) **Default value**: - **Type**: Mandatory

5.4.107 runningcfg write partition

Description Write running configuration to memory

Syntax runningcfg write partition <number>

Parameter

Name	Description
<number>	Partition number **Valid values**: 1~2 **Default value**: - **Type**: Mandatory

5.4.108 snmp <index> community

Description Set SNMP read only or read/write community string

Syntax snmp <index> community {ro | rw} <community>

Parameter

Name	Description
<index>	SNMP community index **Valid values**: 1~32 **Default value**: - **Type**: Mandatory
<community>	Community string. (max 63 character; note that community names beginning with a digital number are not allowed) **Default value**: public **Type**: Mandatory

5.4.109 snmp notify

Description Set SNMP notify information / Delete SNMP notify tag

Syntax snmp notify <name> {tag <tag> | delete}

Parameter

Name	Description
<name>	Notify name string. (max 31 characters) **Default value**: - **Type**: Mandatory
<tag>	Notify Tag string. (max 31 characters) **Default value**: - **Type**: Mandatory

5.4.110 snmp target <name> address

Description Set SNMP target address

Syntax snmp target <name> address <ipv4 address> port <port>

Parameter

Name	Description
<name>	SNMP target name **Valid values**: (max 31 characters) **Default value**: - **Type**: Mandatory
<ipv4 address>	Target IP address **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: - **Type**: Mandatory
<port>	SNMP target port **Valid values**: 1~65535 **Default value**: 162 **Type**: Mandatory

5.4.111 snmp target <name> delete

Description Delete SNMP target tag list

Syntax snmp target <name> delete

Parameter

Name	Description
<name>	SNMP target name **Valid values**: (max 31 characters) **Default value**: - **Type**: Mandatory

5.4.112 snmp target <name> tag-list

Description Set SNMP target tag list

Syntax snmp target <name> tag-list <string>

Parameter

Name	Description
<name>	SNMP target name **Valid values**: (max 31 characters) **Default value**: - **Type**: Mandatory
<string>	SNMP target tag list **Valid values**: (max 31 characters) **Default value**: - **Type**: Mandatory

5.4.113 snmp target <name> version

Description Set SNMP target trap version to V1 or V2C

Syntax snmp target <name> version {v1 | v2c}

Parameter

Name	Description
<name>	SNMP target name **Valid values**: (max 31 characters) **Default value**: - **Type**: Mandatory

5.4.114 sntp polling interval

Description Set SNTP polling interval

Syntax sntp polling interval <number>

Parameter

Name	Description
number	Polling interval (in seconds) **Valid values**: 60~65535 **Default value**: 600 **Type**: Mandatory

5.4.115 sntp server address

Description Set SNTP server ip address

Syntax snmp server address <ipv4 address>

Parameter

Name	Description
<ipv4 address>	IP address of SNTP server. **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: 0.0.0.0 **Type**: Mandatory

5.4.116 stp

Description STP set default

Syntax stp [default]

Parameter None

5.4.117 stp enable

Description Enable Spanning Tree Protocol (STP)

Syntax stp enable

Parameter None

5.4.118 stp disable

Description Disable Spanning Tree Protocol (STP)

Syntax stp disable

Parameter None

5.4.119 stp forward delay

Description Set STP forward delay

Syntax stp forward delay <number>

Parameter

Name	Description
number	STP forward delay value **Valid values**: 4-30 **Default value**: - **Type**: Mandatory

5.4.120 stp hello time

Description Set STP hello time

Syntax stp hello time <number>

Parameter

Name	Description
number	STP hello time value **Valid values**: 1-10 **Default value**: - **Type**: Mandatory

5.4.121 stp max-age

Description Set STP maximum age

Syntax stp max-age <number>

Parameter

Name	Description
number	STP maximum age value **Valid values**: 6-40 **Default value**: - **Type**: Mandatory

5.4.122 stp priority

Description Set STP priority value

Syntax stp priority <number>

Parameter

Name	Description
number	STP priority value **Valid values**: 0-65535 **Default value**: 32768 **Type**: Mandatory

5.4.123 stp version

Description Set version to STP or RSTP

Syntax stp version {STP | RSTP}

Parameter None

5.4.124 syslog server

Description Set system log server

Syntax syslog server <ipv4 address>

Parameter

Name	Description
<ipv4 address>	Syslog server IP address **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: 0.0.0.0 **Type**: Mandatory

5.4.125 tcm color-aware

Description Set Color Aware or Color Blind TCM Policer

Syntax tcm color-aware {aware | blind}

Parameter None

5.4.126 tcm color-field

Description Set TCM color field to be VLAN priority or DSCP.

Syntax tcm color-field {vprio | dscp}

Parameter None

5.4.127 tcm green

Description Set TCM green color value

Syntax tcm green <number>

Parameter

Name	Description
<number>	TCM green color value **Valid values**: 0 ~ 7 for VLAN priority color field; 0 ~ 63 for DSCP color field **Default value**: 1 **Type**: Mandatory

5.4.128 tcm non-conform-pkt

Description Set the action for non-conforming packets: discard or tag. If “Tag” is selected, then all the packets will be marked as green, yellow, or red in the Color field.

Syntax tcm non-conform-pkt {discard | tag}

Parameter None

5.4.129 tcm red

Description Set TCM red color value

Syntax tcm red <number>

Parameter

Name	Description
<number>	TCM red color value **Valid values**: 0 ~ 7 for VLAN priority color field; 0 ~ 63 for DSCP color field **Default value**: 7 **Type**: Mandatory

5.4.130 tcm yellow

Description Set TCM yellow color value

Syntax tcm yellow <number>

Parameter

Name	Description
<number>	TCM yellow color value **Valid values**: 0 ~ 7 for VLAN priority color field; 0 ~ 63 for DSCP color field **Default value**: 3 **Type**: Mandatory

5.4.131 temperature threshold

Description Shelf temperature threshold

Syntax temperature threshold {up | down | fan} <number>

Parameter

Name	Description
<number>	Temperature threshold value. **Valid values**: up: -55~85 Down: -55~85 fan: -40~15 **Default value**: up: 65 down: 65 fan: -40 **Type**: Mandatory

5.4.132 temperature shelf time

Description Shelf time

Syntax temperature shelf time {up | down} <number>

Parameter

Name	Description
<number>	Shelf time value. **Valid values**: 1~255 **Default value**: 10 **Type**: Mandatory

5.4.133 time set date

Description Set date of the system (default is current system date)

Syntax time set date {MM-DD-YY | MM-DD-CCYY}

Parameter

Name	Description
MM	Month. **Valid values**: 01-12 **Type**: Mandatory
DD	Day of month. **Valid values**: 01-31 **Type**: Mandatory
CC	Century. **Valid values**: 0 **Type**: Optional
YY	Short year start from 2000. **Valid values**: 00-99 **Type**: Mandatory

5.4.134 time set time

Description Set time of the system (default is current system time)

Syntax time set time {hh:mm | hh:mm:ss}

Parameter

Name	Description
hh	Hour in 24 hour format **Valid values**: 00-23 **Type**: Mandatory
mm	Minute. **Valid values**: 00-59 **Type**: Mandatory
ss	Second **Valid values**: 00-59 **Type**: Optional

5.4.135 time set timezone

Description Set timezone

Syntax time set timezone <timezone>

Parameter

Name	Description
timezone	Timezone **Type**: Mandatory **Valid values**: Given below. idl (GMT-12:00) International Date Line idlw (GMT-12:00) International Date Line West nt (GMT-11:00) Nome Time ahst (GMT-10:00) Alaska GMT Hawaii Standard Time hst (GMT-10:00) Hawaiian Standard Time bdt (GMT-10:00) BDT cat (GMT-10:00) Central Alaska Time yst (GMT-09:00) Yukon Standard Time hdt (GMT-09:00) HDT pst (GMT-08:00) Pacific Standard Time ydt (GMT-08:00) YDT mst (GMT-07:00) Mountain Standard Time pdt (GMT-07:00) Pacific Daylight Time cst (GMT-06:00) Central Standard Time mdt (GMT-06:00) Mountain Daylight Time est (GMT-05:00) Eastan Standard Time

	cdt	(GMT-05:00) Central Daylight Time
	ast	(GMT-04:00) Atlantic Standard Time
	edt	(GMT-04:00) Eastan Daylight Time
	nst	(GMT-03:30) Newfoundland Standard Time
	adt	(GMT-03:00) Altantic Daylight Time
	bst	(GMT-03:00) Brazil Standard Time
	gst	(GMT-03:00) Greenland Standard Time
	at	(GMT-02:00) Azores Time
	wat	(GMT-01:00) West Africa Time
	gmt	(GMT) Greenwich Mean Time
	wet	(GMT+00:00) Western European Time
	ut	(GMT+00:00) Universal Time
	utc	(GMT+00:00) Universal Time
	cet	(GMT+01:00) Central European Time
	met	(GMT+01:00) Middle European Time
	mewt	(GMT+01:00) Middle Eruopean Winter Time
	swt	(GMT+01:00) Swedish Winter Time
	fwt	(GMT+01:00) French Winter Time
	eet	(GMT+02:00) Eastean European Time
	mest	(GMT+02:00) Middle European Summer Time
	fst	(GMT+02:00) French Summer Time
	es	(GMT+02:00) Egypt Standard Time
	ed	(GMT+03:00) Egypt Daylight Time
	bt	(GMT+03:00) Baghdad Time
	it	(GMT+03:30) Iran Time
	zp4	(GMT+04:00) GMT Plus 4 Hours
	zp5	(GMT+05:00) GMT Plus 5 Hours
	ist	(GMT+05:30) Indian Standard Time
	zp6	(GMT+06:00) GMT Plus 6 Hours
	sst	(GMT+07:00) South Smatra Time
	wast	(GMT+07:00) West Australian Standard Time
	jt	(GMT+07:30) Java Time
	cct	(GMT+08:00) China Coast Time
	hst	(GMT+08:00) HongKong Standard Time
	wadt	(GMT+08:00) West Australian Daylight Time
	wst	(GMT+08:00) WST
	jst	(GMT+09:00) Japan Standard Time
	kst	(GMT+09:00) Korean Standard Time
	cast	(GMT+09:30) Central Australian

	Standard Time	
	sast Standard Time	(GMT+09:30) South Australian
	jdt	(GMT+10:00) JDT
	gst	(GMT+10:00) Guam Standard Time
	east Standard Time	(GMT+10:00) East Australian
	cadt Daylight Time	(GMT+10:30) Central Austrlian
	sadt Daylight Time	(GMT+10:30) South Australian
	eadt Time	(GMT+11:00) East Australian Daylight
	nzt	(GMT+12:00) New Zealand Time
	nzst Time	(GMT+12:00) New Zealand Standard
	idle East	(GMT+12:00) International Date Line
	nzdt Time	(GMT+13:00) New Zealand Daylight

5.4.136 trunk-mode

Description Set Trunk mode to Non Link Aggregation or Link Aggregation with LACP

Syntax trunk-mode {general | lacp}

Parameter None

5.4.137 vlan ethertype s-tag

Description Set VLAN S-Tag Ether Type value

Syntax vlan ethertype s-tag <number>

Parameter

Name	Description
<number>	S-Tag Ether type value **Valid values**: 0x0001 ~ 0xffff **Default value**: 0x8100 **Type**: Mandatory

5.4.138 vlan protocol-base

Description Set Protocol Based VLAN table / Delete the specified entry from Protocol Based VLAN table

Syntax vlan protocol-base <index> {ethertype <number> vlan <VLAN ID> | disable}

Parameter

Name	Description
<index>	Protocol Based VLAN table index. **Valid values**: 1 ~ 32 **Default value**: - **Type**: Mandatory
<number>	Ether type value **Valid values**: 0x0001 ~ 0xffff **Default value**: - **Type**: Mandatory
<VLAN ID>	VLAN ID **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory

5.4.139 vlan-translation <port>/<pvc> <VLAN ID> gigabit <port> one-to-one

Description Set one-to-one VLAN translation

Syntax **1. C-tag reserved**

vlan-translation <port>/<pvc> <user port VLAN ID> gigabit <port> one-to-one reserved {priority-reserved | priority-replaced <PRIO ID>}

2. C-tag replaced

vlan-trans vlan-translation <port>/<pvc> <user port VLAN ID> gigabit <port> one-to-one replaced <uplink VLAN ID> {priority-reserved | priority-replaced <PRIO ID>}

3. Stacking and C-tag reserved

vlan-trans vlan-translation <port>/<pvc> <user port VLAN ID> gigabit <port> one-to-one stacking <uplink VLAN ID> {priority-reserved | priority-replaced <PRIO ID>}

4. Stacking and C-tag replaced

vlan-translation <port>/<pvc> <user port VLAN ID> gigabit <port> one-to-one stacking <uplink VLAN ID> ctag-replaced <c-tag VLAN ID> <c-tag PRIO ID> {priority-reserved | priority-replaced <PRIO ID>}

Parameter

Name	Description
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<user port VLAN ID>	ADSL port VLAN ID **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory
<uplink VLAN ID>	Gigabit uplink port VLAN ID **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory
<PRIO ID>	Replaced the priority level of packets out through the uplink port with the specified value. **Valid values**: 0 ~ 7 **Default value**: - **Type**: Mandatory

5.4.140 vlan-translation <port>/<pvc> <VLAN ID> gigabit <port> many-to-one

Description Set many-to-one VLAN translation

Syntax vlan-translation <port>/<pvc> <user port VLAN ID> gigabit <port> many-to-one replaced <uplink VLAN ID> {priority-reserved | priority-replaced <PRIO ID>}

Parameter

Name	Description
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<user port VLAN ID>	ADSL port VLAN ID **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory
<uplink VLAN ID>	Gigabit uplink port VLAN ID **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory
<PRIO ID>	Replaced the priority level of packets out through the uplink port with the specified value. **Valid values**: 0 ~ 7 **Default value**: - **Type**: Mandatory

5.4.141 vlan-translation <port>/<pvc> <VLAN ID> gigabit la one-to-one

Description Set one-to-one VLAN translation for link aggregation gigabit interface

Syntax **1. C-tag reserved**

vlan-translation <port>/<pvc> <user port VLAN ID> gigabit la one-to-one reserved {priority-reserved | priority-replaced <PRIO ID>}

2. C-tag replaced

vlan-trans vlan-translation <port>/<pvc> <user port VLAN ID> gigabit la one-to-one replaced <uplink VLAN ID> {priority-reserved | priority-replaced <PRIO ID>}

3. Stacking and C-tag reserved

vlan-trans vlan-translation <port>/<pvc> <user port VLAN ID> gigabit la one-to-one stacking <uplink VLAN ID> {priority-reserved | priority-replaced <PRIO ID>}

4. Stacking and C-tag replaced

vlan-translation <port>/<pvc> <user port VLAN ID> gigabit la one-to-one stacking <uplink VLAN ID> ctag-replaced <c-tag VLAN ID> <c-tag PRIO ID> {priority-reserved | priority-replaced <PRIO ID>}

Parameter

Name	Description
<port>	Port number. **Valid values**: 1~48 for xDSL **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<user port VLAN ID>	ADSL port VLAN ID **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory
<uplink VLAN ID>	Gigabit uplink port VLAN ID **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory
<PRIO ID>	Replaced the priority level of packets out through the uplink port with the specified value. **Valid values**: 0 ~ 7 **Default value**: - **Type**: Mandatory

5.4.142 vlan-translation <port>/<pvc> <VLAN ID> gigabit la many-to-one

Description Set many-to-one VLAN translation for link aggregation gigabit interface

Syntax vlan-translation <port>/<pvc> <user port VLAN ID> gigabit la many- to-one replaced <uplink VLAN ID> {priority-reserved | priority-replaced <PRIO ID>}

Parameter

Name	Description
<port>	Port number. **Valid values**: 1~48 for xDSL **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<user port VLAN ID>	ADSL port VLAN ID **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory
<uplink VLAN ID>	Gigabit uplink port VLAN ID **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory
<PRIO ID>	Replaced the priority level of packets out through the uplink port with the specified value. **Valid values**: 0 ~ 7 **Default value**: - **Type**: Mandatory

5.4.143 vlan-translation <port>/<pvc> <VLAN ID> disable

Description Delete the specified entry from the VLAN translation table.

Syntax vlan-translation <port>/<pvc> <VLAN ID> disable

Parameter

Name	Description
<port>	ADSL Port number. **Valid values**: 1~48 **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<VLAN ID>	ADSL port VLAN ID **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory

5.5 Ethernet Interface Mode Commands

The commands in this section can be executed only in the Ethernet Interface execution mode.

5.5.1 bridge

Description Enter bridge configuration mode / Set bridge port to default status

Syntax bridge [default]

Parameter None

5.5.2 gbe admin

Description Set Gigabit Ethernet administrative status (ON/OFF)

Syntax gbe admin {on | off}

Parameter None

5.5.3 gbe speed

Description Set Gigabit ethernet speed to auto-negotiate, 100Mbps half duplexing, or 100Mbps full duplexing / Set Copper or SFP as the first priority of GBE physical interface

Syntax gbe speed {auto | half_100mbps | full_100mbps | physical {copper | sfp}}

Parameter None

5.6 Interface Mode Commands

The commands in this section can be executed only in the Interface execution mode.

5.6.1 bridge

Description Enter ATM-bridge configuration mode / Disable bridge port

Syntax bridge <bridge id> [disable]

Parameter

Name	Description
bridge id	Bridge number. **Valid values**: 1-8 **Default value**: 1 **Type**: Mandatory

5.6.2 adsl-config

Description Enter adsl configuration mode

Syntax adsl-config

Parameter None

5.6.3 ipoa

Description Enter IPoA (RFC 2684) routed mode

Syntax ipoa

Parameter None

5.7 ATM Bridge Mode Commands

The commands in this section can be executed only in the ATM Bridge execution mode.

5.7.1 accfrm

Description Set acceptable frame type (untagged only, tagged only, or all)

Syntax accfrm {all | tag | untag}

Parameter None

5.7.2 default vlan

Description Set default VLAN ID for a bridge port

Syntax default vlan <VLAN ID>

Parameter

Name	Description
<VLAN ID>	VLAN ID **Valid values**: 1 ~ 4094 **Default value**: 1 **Type**: Mandatory

5.7.3 default prio

Description Set default priority value for a bridge port

Syntax default prio <prio ID>

Parameter

Name	Description
<prio ID>	Priority ID **Valid values**: 0 ~ 7 **Default value**: 0 **Type**: Mandatory

5.7.4 dhcp-relay

Description Enable/disable DHCP relay, or Set circuit ID/remote ID for identifying the subscriber

Syntax dhcp-relay {trusted | untrusted | circuit <circuit ID> | remote <remote ID>}

Parameter

Name	Description
<circuit ID>	Circuit ID **Valid values**: string type (max length 48) **Default value**: - **Type**: Mandatory
<remote ID	Remote ID **Valid values**: string type (max length 48) **Default value**: - **Type**: Mandatory

5.7.5 egress

Description Default PVID egress taged/untagged setting

Syntax egress {tag | untag}

Parameter None

5.7.6 force priority

Description Force priority setting (**disabled**: reserve the original priority of all packets. **egress**: force the priority value of all packets sent out from this bridge port's default VLAN to be the default VLAN priority, so this rule only works on default VLAN of this bridge port. **ingress**: force applying the default VLAN priority value to all the packets received on this bridge port (so this rule will work on all the member-set of this bridge port). **both**: combine the rules of Ingress and Egress.

Syntax force priority {disable | engress | ingress | both}

Parameter None

5.7.7 igmp-acl bind

Description IGMP ACL (Access Control List) binding profile configuration

Syntax igmp-acl bind {<number> [on] | on | off | reset}

Parameter

Name	Description
<number>	IGMP ACL profile index. **Valid values**: 1 ~ 15 **Default value**: 0 **Type**: Mandatory

5.7.8 igmp-acl max-group

Description Per port limit IGMP join group number

Syntax igmp-acl max-group <number>

Parameter

Name	Description
<number>	IGMP ACL profile index. **Valid values**: 1 ~ 128 **Default value**: 8 **Type**: Mandatory

5.7.9 ingress

Description Enable/disable ingress filter mode

Syntax ingress {enable | disable}

Parameter None

5.7.10 ip-allowed

Description Enable/disable IP allowed function (user can specify allowed source IP address per bridge port)

Syntax ip-allowed {enable | disable}

Parameter None

5.7.11 isolation

Description Enable/Disable default PVID isolation setting

Syntax isolation [disable]

Parameter None

5.7.12 mac-learning

Description Enable/disable MAC learning ability of a bridge port

Syntax mac-learning {enable | disable}

Parameter None

5.7.13 max-mac

Description Set the maximum users allowed to access Internet based on user MAC address counter on per ATM PVC basis

Syntax max-mac <number>

Parameter

Name	Description
<number>	Maximum number of the MAC addresses **Valid values**: 1 ~ 128 **Default value**: 0 **Type**: Mandatory

5.7.14 priority-regen

Description VLAN priority value regeneration or Delete VLAN priority tag filter

Syntax priority-regen incoming <incoming prio> {outgoing <outgoing prio> | disable}

Parameter

Name	Description
<incoming prio>	Incoming VLAN priority value **Valid values**: 0 ~ 7 **Default value**: - **Type**: Mandatory
<outgoing prio>	Outgoing VLAN priority value **Valid values**: 0 ~ 7 **Default value**: - **Type**: Mandatory

5.7.15 protocol-base

Description Enable/disable protocol-based VLAN

Syntax protocol-base {enable | disable}

Parameter None

5.7.16 pvc

Description Set VPI and VCI

Syntax pvc <VPI>/<VCI>

Parameter

Name	Description
<VPI>	Virtual Path Identifier. **Valid values**: 0 ~ 255 **Default value**: 0 **Type**: Mandatory
<VCI>	Virtual Channel Identifier. **Valid values**: 21, 32~65535 **Default value**: 35 **Type**: Mandatory

5.7.17 pvc atmdesc

Description List ATM traffic descriptor

Syntax pvc atmdesc

Parameter None

5.7.18 pvc atmdesc plc

Description Set ATM police (Rx) descriptor

Syntax pvc atmdesc plc <number>

Parameter

Name	Description
<number>	ATM descriptor number. **Valid values**: Enter 'pvc atmdesc' command to see the descriptor list. **Default value**: - **Type**: Mandatory

5.7.19 pvc atmdesc shp

Description Set ATM shaped (Tx) descriptor

Syntax pvc atmdesc shp <number>

Parameter

Name	Description
<number>	ATM descriptor number. **Valid values**: Enter 'pvc atmdesc' command to see the descriptor list. **Default value**: - **Type**: Mandatory

5.7.20 pvc encapsulation

Description Set Encapsulation type

Syntax pvc encapsulation {llc | vcmux | auto}

Parameter None

Note: The VX-1000HDX/MDX supports auto-detection of the ATM AAL5 encapsulation method, LLC or VC-Mux. Meanwhile, the VX-1000HDX/MDX is also able to automatically sense the following protocol encapsulations: PPPoE over ATM (per RFC 2684), IPoE over ATM bridge mode, and PPP over ATM. IPoA works on individual PVC.

However, there are limitations on auto-detection of encapsulations:

3. LLC/VC-Mux automatically detection is only applicable to PVC#1 ~ PVC#4 of each ADSL port. PVC#5 ~ PVC#8 must be assigned the ATM AAL5 encapsulation method manually.
4. PPPoA works only for PVC#1 ~ PVC#4.

Refer to IPoA configuration commands.

5.7.21 stack

Description Enable/disable VLAN stacking

Syntax stack {enable | disable}

Parameter None

5.7.22 stack tls port enable

Description Enable VLAN stack TLS (transparent LAN service) port

Syntax stack tls port {enable | disable}

Parameter None

5.7.23 tcm-policer

Description Bind/Unbind Three Color Marking (TCM) Policer profile

Syntax tcm-policer <number> {bind | unbind}

Parameter

Name	Description
<number>	TCM policer profile index. **Valid values**: 1 ~ 48 **Default value**: - **Type**: Mandatory

5.7.24 vlan <VLAN ID> disable

Description Delete a VLAN from memberset table

Syntax vlan <VLAN ID> disable

Parameter

Name	Description
VLAN ID	VLAN ID. **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory

5.7.25 vlan <VLAN ID> list

Description Show memberset setting by VLAN

Syntax vlan <VLAN ID> list

Parameter

Name	Description
VLAN ID	VLAN ID. **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory

5.7.26 vlan <VLAN ID> priority

Description Set VLAN memberset priority (specify priority level or reserved the originalpriority, tag or untag, enable or disable port isolation)

Syntax vlan <VLAN ID> priority {<prio ID> | reserved} {tag | untag} isolation [disable]

Parameter

Name	Description
VLAN ID	VLAN ID. **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory
<prio ID>	Priority ID **Valid values**: 0 ~ 7 **Default value**: 0 **Type**: Mandatory

5.7.27 vlan list

Description Show memberset setting by VLAN

Syntax vlan list

Parameter None

5.8 GBE Bridge Mode Commands

The commands in this section can be executed only in the GBE Bridge execution mode.

5.8.1 accfrm

Description Set acceptable frame type (untagged only, tagged only, or all)

Syntax accfrm {all | tag | untag}

Parameter None

5.8.2 default vlan

Description Set default VLAN ID for a bridge port

Syntax default vlan <VLAN ID>

Parameter

Name	Description
<VLAN ID>	VLAN ID **Valid values**: 1 ~ 4094 **Default value**: 1 **Type**: Mandatory

5.8.3 default prio

Description Set default priority value for a bridge port

Syntax default prio <prio ID>

Parameter

Name	Description
<prio ID>	Priority ID **Valid values**: 0 ~ 7 **Default value**: 0 **Type**: Mandatory

5.8.4 egress

Description Default PVID egress taged/untagged setting

Syntax egress {tag | untag}

Parameter None

5.8.5 ingress

Description Enable/disable ingress filter mode

Syntax ingress {enable | disable}

Parameter None

5.8.6 isolation

Description Enable/Disable default PVID isolation setting

Syntax isolation [disable]

Parameter None

5.8.7 link mode

Description Set link mode (uplink mode or user mode)

Syntax link mode {uplink | user}

Parameter None

5.8.8 max-mac

Description Set the maximum users allowed to access Internet based on user MAC address counter on per ATM PVC basis

Syntax max-mac <number>

Parameter

Name	Description
<number>	Maximum number of the MAC addresses **Valid values**: 1 ~ 4096 for GBE interface, 1 ~ 128 for ADSL interface. **Default value**: 0 **Type**: Mandatory

5.8.9 priority-regen

Description VLAN priority value regeneration or Delete VLAN priority tag filter

Syntax priority-regen incoming <incoming prio> {outgoing <outgoing prio> | disable}

Parameter

Name	Description
<incoming prio>	Incoming VLAN priority value **Valid values**: 0 ~ 7 **Default value**: - **Type**: Mandatory
<outgoing prio>	Outgoing VLAN priority value **Valid values**: 0 ~ 7 **Default value**: - **Type**: Mandatory

5.8.10 stack

Description Enable/disable VLAN stacking

Syntax stack {enable | disable}

Parameter None

5.8.11 stpport edge

Description Set edge status

Syntax stpport edg {enable | disable}

Parameter None

5.8.12 stpport enable/disable

Description Enable/Disable STP port

Syntax stpport {enable | disable}

Parameter None

5.8.13 stpport pathcost

Description Set STP port pathcost

Syntax stpport pathcost <number>

Parameter

Name	Description
<number>	Path cost value. **Valid values**: 1~65535 **Default value**: 9 **Type**: Mandatory

5.8.14 stpport priority

Description Set STP port priority

Syntax stpport priority <number>

Parameter

Name	Description
<number>	Priority value. **Valid values**: 0~240,step 16 **Default value**: 255 **Type**: Mandatory

5.8.15 tcm-policer

Description Bind/Unbind Three Color Marking (TCM) Policer profile

Syntax tcm-policer <number> {bind | unbind}

Parameter

Name	Description
<number>	TCM policer profile index. **Valid values**: 1 ~ 48 **Default value**: - **Type**: Mandatory

5.8.16 vlan <VLAN ID> disable

Description Delete a VLAN from memberset table

Syntax vlan <VLAN ID> disable

Parameter

Name	Description
VLAN ID	VLAN ID. **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory

5.8.17 vlan <VLAN ID> list

Description Show memberset setting by VLAN

Syntax vlan <VLAN ID> list

Parameter

Name	Description
VLAN ID	VLAN ID. **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory

5.8.18 vlan <VLAN ID> priority

Description Set VLAN memberset priority (specify priority level or reserved the original priority, tag or untag, enable or disable port isolation)

Syntax vlan <VLAN ID> priority {<prio ID> | reserved} {tag | untag} isolation [disable]

Parameter

Name	Description
VLAN ID	VLAN ID. **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory
<prio ID>	Priority ID **Valid values**: 0 ~ 7 **Default value**: 0 **Type**: Mandatory

5.8.19 vlan list

Description Show memberset setting by VLAN

Syntax vlan list

Parameter None

5.9 GBE-LA Bridge Mode Commands

5.9.1 accfrm

Description Set acceptable frame type (untagged only, tagged only, or all)

Syntax accfrm {all | tag | untag}

Parameter None

5.9.2 default vlan

Description Set default VLAN ID for a bridge port

Syntax default vlan <VLAN ID>

Parameter

Name	Description
<VLAN ID>	VLAN ID **Valid values**: 1 ~ 4094 **Default value**: 1 **Type**: Mandatory

5.9.3 default prio

Description Set default priority value for a bridge port

Syntax default prio <prio ID>

Parameter

Name	Description
<prio ID>	Priority ID **Valid values**: 0 ~ 7 **Default value**: 0 **Type**: Mandatory

5.9.4 egress

Description Default PVID egress taged/untagged setting

Syntax egress {tag | untag}

Parameter None

5.9.5 ingress

Description Enable/disable ingress filter mode

Syntax ingress {enable | disable}

Parameter None

5.9.6 isolation

Description Enable/Disable default PVID isolation setting

Syntax isolation [disable]

Parameter None

5.9.7 lacp actor priority system

Description Set actor's system priority (Link aggregation only).

Syntax lacp actor priority system <number>

Parameter

Name	Description
number	Set system priority value. **Valid values**: 0-65535 **Default value**: - **Type**: Mandatory

5.9.8 link mode

Description Set link mode (uplink mode or user mode)

Syntax link mode {uplink | user}

Parameter None

5.9.9 max-mac

Description Set the maximum users allowed to access Internet based on user MAC address counter on per ATM PVC basis

Syntax max-mac <number>

Parameter

Name	Description
<number>	Maximum number of the MAC addresses **Valid values**: 1 ~ 4096 **Default value**: 0 **Type**: Mandatory

5.9.10 priority-regen

Description VLAN priority value regeneration or Delete VLAN priority tag filter

Syntax priority-regen incoming <incoming prio> {outgoing <outgoing prio> | disable}

Parameter

Name	Description
<incoming prio>	Incoming VLAN priority value **Valid values**: 0 ~ 7 **Default value**: - **Type**: Mandatory
<outgoing prio>	Outgoing VLAN priority value **Valid values**: 0 ~ 7 **Default value**: - **Type**: Mandatory

5.9.11 stack

Description Enable/disable VLAN stacking

Syntax stack {enable | disable}

Parameter None

5.9.12 tcm-policer

Description Bind/Unbind Three Color Marking (TCM) Policer profile

Syntax tcm-policer <number> {bind | unbind}

Parameter

Name	Description
<number>	TCM policer profile index. **Valid values**: 1 ~ 48 **Default value**: - **Type**: Mandatory

5.9.13 vlan <VLAN ID> disable

Description Delete a VLAN from memberset table

Syntax vlan <VLAN ID> disable

Parameter

Name	Description
VLAN ID	VLAN ID. **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory

5.9.14 vlan <VLAN ID> list

Description Show memberset setting by VLAN

Syntax vlan <VLAN ID> list

Parameter

Name	Description
VLAN ID	VLAN ID. **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory

5.9.15 vlan <VLAN ID> priority

Description Set VLAN memberset priority (specify priority level or reserved the original priority, tag or untag, enable or disable port isolation)

Syntax vlan <VLAN ID> priority {<prio ID> | reserved} {tag | untag} isolation [disable]

Parameter

Name	Description
VLAN ID	VLAN ID. **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory
<prio ID>	Priority ID **Valid values**: 0 ~ 7 **Default value**: 0 **Type**: Mandatory

5.9.16 vlan list

Description Show memberset setting by VLAN

Syntax vlan list

Parameter None

5.10 ADSL Configure Mode Commands

The commands in this section can be executed only in the ADSL Config mode.

5.10.1 line mode carrier

Description Set/Clear xDSL line carrier

Syntax line mode carrier {on | off | oninit}

Parameter None

5.10.2 line mode diagnostic

Description Set/Clear xDSL line diagnostics

Syntax line mode diagnostic {init | off}

Parameter None

5.10.3 line mode force-l3

Description Set force to power management L3 mode or not

Syntax line mode force-l3 {on | off}

Parameter None

5.10.4 line mode mask

Description Set/Clear xDSL line Operational mode mask

Syntax line mode mask {set | clear } <opmode ID>

Parameter

Name	Description
<opmode id>	The ID of allowed ADSL modes of operation. **Valid values**: Use ‘list opmode’ command to see all the operation modes. **Default value**: - **Type**: Mandatory

5.10.5 line port

Description Set xDSL line port information

Syntax line port {id <id> | description <desc> | phone <phone number>}

Parameter

Name	Description
<id>	Line ID name (max 32 characters) **Default value**: - **Type**: Mandatory
<desc>	Line port description (max 48 character) **Default value**: - **Type**: Mandatory
<phone number>	Phone number. (max 32 characters) **Valid values**: no limit format **Default value**: - **Type**: Mandatory

5.10.6 line profile

Description Create xDSL line profile

Syntax line profile {service | spectrum | tca} <number>

Parameter

Name	Description
<number>	Profile index. **Valid values**: 1~120 (1~64 for tca profile) **Default value**: - **Type**: Mandatory

5.10.7 line status service

Description Set xDSL line service status (service ON/OFF/RESET)

Syntax line status service {on | off | reset}

Parameter None

5.11 IPoA Configure Mode Commands

The commands in this section can be executed only in the IPoA configure mode.

5.11.1 brasmac

Description Display Broadband RAS MAC address by index

Syntax brasmac <number>

Parameter

Name	Description
<number>	Broadband RAS MAC Table Index **Valid values**: 1 ~ 48 **Default value**: - **Type**: Mandatory

5.11.2 brasmac list

Description Show Broadband RAS MAC address table

Syntax brasmac list

Parameter None

5.11.3 cpriority

Description Customer VLAN Priority setting

Syntax cpriority <prio ID>

Parameter

Name	Description
<prio ID>	Customer VLAN Priority value **Valid values**: 0 ~ 7 **Default value**: - **Type**: Mandatory

5.11.4 cvlan

Description Customer VLAN setting

Syntax cvlan <VLAN ID>

Parameter

Name	Description
<prio ID>	Customer VLAN ID number **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory

5.11.5 ipoa-status

Description IPoA Status setting (enable/disable IPoA)

Syntax ipoa-status {enable | disable}

Parameter None

5.11.6 max-mac

Description Port based allowed maximum number of MAC addresses

Syntax max-mac <number>

Parameter

Name	Description
<number>	Number of MAC addresses **Valid values**: 1 ~ 128 **Default value**: - **Type**: Mandatory

5.11.7 pvc

Description Set VPI and VCI

Syntax pvc <VPI>/<VCI>

Parameter

Name	Description
<VPI>	Virtual Path Identifier. **Valid values**: 0 ~ 255 **Default value**: 0 **Type**: Mandatory
<VCI>	Virtual Channel Identifier. **Valid values**: 21, 32~65535 **Default value**: 35 **Type**: Mandatory

5.11.8 pvc atmdesc

Description List ATM traffic descriptor

Syntax pvc atmdesc

Parameter None

5.11.9 pvc atmdesc plc

Description Set ATM police (Rx) descriptor

Syntax pvc atmdesc plc <number>

Parameter

Name	Description
<number>	ATM descriptor number. **Valid values**: Enter 'pvc atmdesc' command to see the descriptor list. **Default value**: - **Type**: Mandatory

5.11.10 pvc atmdesc shp

Description Set ATM shaped (Tx) descriptor

Syntax pvc atmdesc shp <number>

Parameter

Name	Description
<number>	ATM descriptor number. **Valid values**: Enter 'pvc atmdesc' command to see the descriptor list. **Default value**: - **Type**: Mandatory

5.11.11 pvc encapsulation

Description Set Encapsulation type

Syntax pvc encapsulation {llc | vcmux}

Parameter None

5.11.12 uplink gigabit

Description Set GBE uplink mode (general or LACP)

Syntax uplink {<port> | la}

Parameter

Name	Description
<port>	Gigabit Ethernet port number. **Valid values**: 1 ~ 2 **Default value**: - **Type**: Mandatory

5.12 Access List Mode Commands

The commands in this section can be executed only in the ACL execution mode.

5.12.1 bcrate cir

Description Broadcast rate limiting CIR and LBS setting

Syntax bcrate cir <cir> lbs <lbs>

Parameter

Name	Description
<cir>	Committed Information Rate (bps) **Valid values**: 1536 ~ 1000000000 **Default value**: 80000 **Type**: Mandatory
<lbs>	Leakage Bucket Size (millisecond) **Valid values**: 1 ~ 1024 **Default value**: 80 **Type**: Mandatory

5.12.2 bcrate list

Description Show broadcast rate limiting list

Syntax bcrate list

Parameter None

5.12.3 dstmac

Description Specify destination MAC address of packets to filter / Show specified destination MAC deny access list entry / Delete specified destination MAC deny access list entry

Syntax dstmac <number> deny {xdsl <port>/<pvc> | gigabit {<port> | la}} mac <mac address>

dstmac <number> list

dstmac <number> disable

Parameter

Name	Description
<number>	Destination MAC deny access list number **Valid values**: 1~256 **Default value**: - **Type**: Mandatory
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<mac address>	Destination MAC address **Valid values**: xx:xx:xx:xx:xx:xx (xx:00~ff) **Default value**: 00:00:00:00:00:00 **Type**: Mandatory

5.12.4 dstmac list

Description Display destination MAC deny access list

Syntax dstmac list

Parameter None

5.12.5 dstip

Description Specify destination IP address of packets to filter / Show specified destination IP deny access list entry / Delete specified destination IP deny access list entry

Syntax dstip <number> deny {xdsl <port>/<pvc> | gigabit {<port> | la}} ip <ipv4 address> <netmask>

dstip <number> list

dstip <number> disable

Parameter

Name	Description
<number>	Destination IP deny access list number **Valid values**: 1~256 **Default value**: - **Type**: Mandatory
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<ipv4 address>	Destination IP address **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: 0.0.0.0 **Type**: Mandatory
<netmask>	Subnet mask **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: - **Type**: Optional

5.12.6 dstip list

Description Display destination IP deny access list

Syntax dstip list

Parameter None

5.12.7 ethertype

Description Specify Ether Type of packets to filter / Show specified Ether Type deny access list entry / Delete specified Ether Type deny access list entry

Syntax ethertype <number> deny {xdsl <port>/<pvc> | gigabit {<port> | la}} type <ethertype>

ethertype <number> list

ethertype <number> disable

Parameter

Name	Description
<number>	Ether Type deny access list number **Valid values**: 1~256 **Default value**: - **Type**: Mandatory
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<ethertype>	Ether Type value **Valid values**: 0x0001 ~ 0xffff **Default value**: - **Type**: Mandatory

5.12.8 ethertype list

Description Display Ether Type deny access list

Syntax ethertype list

Parameter None

5.12.9 ip-allowed

Description Specify allowed source IP adderss of packets to filter / Show allowed IP access list entry / Delete specified allowed IP from access list

Syntax ip-allowed <number> allow xdsl <port>/<pvc> srcip <ipv4 address> vlan <VLAN ID>

ip-allowed <number> list

ip-allwowed <number> disable

Parameter

Name	Description
<number>	Static IP allow access list number **Valid values**: 1~256 **Default value**: - **Type**: Mandatory
<port>	Port number. **Valid values**: 1~48 for xDSL **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<ipv4 address>	Allowed source IP address **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: 0.0.0.0 **Type**: Mandatory
<VLAN ID>	IP Allowed entry VLAN ID number **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Optional

5.12.10 ip-allowed list

Description Display static IP allow access list

Syntax ip-allowed list

Parameter None

5.12.11 ipprotocol

Description Specify IP Protocol of packets to reject / Show specify IP protocol access list entry / Delete specify IP protocol deny access list entry

Syntax ipprotocol <number> deny {xdsl <port>/<pvc> | gigabit {<port> | la}} protocol <protocol>

ipprotocol <number> list

ipprotocol <number> disable

Parameter

Name	Description
<number>	IP Protocol deny access list number **Valid values**: 1-256 **Default value**: - **Type**: Mandatory
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
protocol	Input protocol name. **Valid values**: icmp (ICMP) Internet Control Message <1> igmp (IGMP) Internet Group Management <2> ipinip IP in IP (encapsulation) <4> tcp (TCP) Transmission Control <6> grp (GRP) Globin Reduction Protocol <7> igp (IGP) Any private interior gateway <9> udp (UDP) User Datagram <17> gre (GRE) General Routing Encapsulation <47> eigrp EIGRP <88> ospf OSPF <89> **Default value**: - **Type**: Mandatory

5.12.12 ipprotocol list

Description Display IP protocol deny access list

Syntax ipprotocol list

Parameter None

5.12.13 l4dstport

Description Specify L4 dest port of packets to reject / Show specify L4 dest port access list entry / Delete specify L4 dest port deny access list entry

Syntax l4dstport <number> {xdsl <port>/<pvc> | gigabit {<port> | la}} port <port number>

l4dstport <number> list

l4dstport <number> disable

Parameter

Name	Description
<number>	L4 dest port deny access list number **Valid values**: 1-256 **Default value**: - **Type**: Mandatory
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<port number>	L4 destination port number **Valid values**: 1-65535 **Default value**: - **Type**: Mandatory

5.12.14 l4dstport list

Description Display L4 dest port deny access list

Syntax l4dstport list

Parameter None

5.12.15 mcfldrate list

Description Display flooding rate limiting list

Syntax mcfldrate list

Parameter None

5.12.16 mcfldrate vlan

Description Display flooding rate limiting list

Syntax mcfldrate vlan <VLAN ID> {list | disable | cir <cir> lbs <lbs>}

Parameter

Name	Description
<VLAN ID>	VLAN ID **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory
<cir>	Committed Information Rate (bps) **Valid values**: 1536 ~ 1000000000 **Default value**: 80000 **Type**: Mandatory
<lbs>	Leakage Bucket Size (millisecond) **Valid values**: 1 ~ 1024 **Default value**: 80 **Type**: Mandatory

5.12.17 srcip

Description Specify source IP address of packets to filter / Show specify source IP deny access list entry / Delete specify source IP deny access list entry

Syntax srcip <number> deny {xdsl <port>/<pvc> | gigabit {<port> | la}} ip <ipv4 address> <net mask>

srcip <number> list

srcip <number> disable

Parameter

Name	Description
<number>	Source IP deny access list number **Valid values**: 1~256 **Default value**: - **Type**: Mandatory
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<ipv4 address>	Destination IP address **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: 0.0.0.0 **Type**: Mandatory
<netmask>	Subnet mask **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: - **Type**: Optional

5.12.18 srcip list

Description Display source IP deny access list

Syntax srcip list

Parameter None

5.12.19 srcmac

Description Specify source MAC of packets to reject / Show specify source MAC deny access list entry / Delete specify source MAC deny access list entry

Syntax srcmac <number> {xdsl <port>/<pvc> | gigabit {<port> | la}} mac <mac address>

srcmac <number> list

srcmac <number> disable

Parameter

Name	Description
<number>	Source MAC deny access list number **Valid values**: 1~256 **Default value**: - **Type**: Mandatory
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<mac address>	MAC address **Valid values**: xx:xx:xx:xx:xx:xx (xx:00~ff) **Default value**: 00:00:00:00:00:00 **Type**: Mandatory

5.12.20 srcmac list

Description Display source MAC deny access list

Syntax srcmac list

Parameter None

5.13 ATM Description Mode Commands

5.13.1 cbr

Description CBR traffic setting

Syntax cbr <index> pcr <pcr> cdvt <cdvt>

Parameter

Name	Description
<index>	ATM Descriptor index **Valid values**: 1 ~ 251 **Default value**: - **Type**: Mandatory
<pcr>	Peak cell rate number **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<cdvt>	Cell Delay Variation Tolerance **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory

5.13.2 no atmdesc

Description Delete ATM Description

Syntax no atmdesc <number>

Parameter

Name	Description
<number>	ATM Description number **Valid values**: 1~251 **Default value**: - **Type**: Mandatory

5.13.3 ubr1

Description UBR type 1 traffic setting (atmNoClpNoScrCdvt)

Syntax ubr1 <index> pcr <pcr> cdvt <cdvt>

Parameter

Name	Description
<index>	ATM Descriptor index **Valid values**: 1 ~ 251 **Default value**: - **Type**: Mandatory
<pcr>	Peak cell rate number **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<cdvt>	Cell Delay Variation Tolerance **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory

5.13.4 ubr2

Description UBR type 2 traffic setting (atmNoClpTaggingNoScr)

Syntax ubr2 <index> pcr <pcr> cdvt <cdvt>

Parameter

Name	Description
<index>	ATM Descriptor index **Valid values**: 1 ~ 251 **Default value**: - **Type**: Mandatory
<pcr>	Peak cell rate number **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<cdvt>	Cell Delay Variation Tolerance **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory

5.13.5 unshp

Description unshaped traffic setting (atmNoTrafficDescriptor)

Syntax unshp <index>

Parameter

Name	Description
<index>	ATM Descriptor index **Valid values**: 1 ~ 251 **Default value**: - **Type**: Mandatory

5.13.6 vbr1

Description VBR type 1 traffic setting (atmNoClpScrCdvt)

Syntax vbr1 <index> pcr <pcr> cdvt <cdvt> scr <scr> mbs <mbs>

Parameter

Name	Description
<index>	ATM Descriptor index **Valid values**: 1 ~ 251 **Default value**: - **Type**: Mandatory
<pcr>	Peak cell rate number **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<cdvt>	Cell Delay Variation Tolerance **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<scr>	Sustained Cell Rate **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<mbs>	Maximum Burst Size **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory

5.13.7 vbr2

Description VBR type 2 traffic setting (atmClpNoTaggingScrCdvt)

Syntax vbr2 <index> pcr <pcr> cdvt <cdvt> scr <scr> mbs <mbs>

Parameter

Name	Description
<index>	ATM Descriptor index **Valid values**: 1 ~ 251 **Default value**: - **Type**: Mandatory
<pcr>	Peak cell rate number **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<cdvt>	Cell Delay Variation Tolerance **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<scr>	Sustained Cell Rate **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<mbs>	Maximum Burst Size **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory

5.13.8 vbr3

Description VBR type 3 traffic setting (atmClpTaggingScrCdvt)

Syntax vbr3 <index> pcr <pcr> cdvt <cdvt> scr <scr> mbs <mbs>

Parameter

Name	Description
<index>	ATM Descriptor index **Valid values**: 1 ~ 251 **Default value**: - **Type**: Mandatory
<pcr>	Peak cell rate number **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<cdvt>	Cell Delay Variation Tolerance **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<scr>	Sustained Cell Rate **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<mbs>	Maximum Burst Size **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory

5.13.9 ubr-shp

Description UBR shaped traffic setting (atmNoClpNoScr)

Syntax ubr-shp <index> pcr <pcr>

Parameter

Name	Description
<index>	ATM Descriptor index **Valid values**: 1 ~ 251 **Default value**: - **Type**: Mandatory
<pcr>	Peak cell rate number **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory

5.13.10 cbr-shp

Description CBR shaped traffic setting (atmClpTransparentNoScr)

Syntax cbr-shp <index> pcr <pcr> cdvt <cdvt>

Parameter

Name	Description
<index>	ATM Descriptor index **Valid values**: 1 ~ 251 **Default value**: - **Type**: Mandatory
<pcr>	Peak cell rate number **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<cdvt>	Cell Delay Variation Tolerance **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory

5.13.11 vbr-shp

Description VBR shaped traffic setting (atmClpTransparentScr)

Syntax vbr-shp <index> pcr <pcr> cdvt <cdvt> scr <scr> mbs <mbs>

Parameter

Name	Description
<index>	ATM Descriptor index **Valid values**: 1 ~ 251 **Default value**: - **Type**: Mandatory
<pcr>	Peak cell rate number **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<cdvt>	Cell Delay Variation Tolerance **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<scr>	Sustained Cell Rate **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<mbs>	Maximum Burst Size **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory

5.13.12 vbrnrt

Description VBR-nrt shaped traffic setting (atmClpNoTaggingScrCdvt)

Syntax vbr-shp <index> pcr <pcr> cdvt <cdvt> scr <scr> mbs <mbs>

Parameter

Name	Description
<index>	ATM Descriptor index **Valid values**: 1 ~ 251 **Default value**: - **Type**: Mandatory
<pcr>	Peak cell rate number **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<cdvt>	Cell Delay Variation Tolerance **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<scr>	Sustained Cell Rate **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory
<mbs>	Maximum Burst Size **Valid values**: 0 ~ 65535 **Default value**: - **Type**: Mandatory

5.14 Priority List Mode Commands

The commands in this section can be executed only in the Priority List execution mode.

5.14.1 ds

Description Set Differentiated Service of packets to remark VLAN priority / Show Differentiated Service priority list entry / Disable Differentiated Service priority list entry

Syntax ds <number> prio <prio ID> {xdsl <port>/<pvc> | gigabit {<port> | la}} dscp <dscp>

ds <number> list

ds <number> disable

Parameter

Name	Description
<number>	Differentiated Service priority list number. **Valid values**: 1~256 **Default value**: - **Type**: Mandatory
<prio ID>	Priority value **Valid values**: 0~7 **Default value**: - **Type**: Mandatory
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<dscp>	Diffserv Code Points, which is a 6-bit number. The standardized combinations are listed below: default Default value (bits:000000) af11 Assured Forwarding Class 1:Low Drop (bits:001010) af12 Assured Forwarding Class 1:Medium Drop (bits:001100) af13 Assured Forwarding Class 1:High Drop (bits:001110) af21 Assured Forwarding Class 2:Low Drop (bits:010010) af22 Assured Forwarding Class 2:Medium Drop (bits:010100)

	af23	Assured Forwarding Class 2:High Drop (bits:010110)
	af31	Assured Forwarding Class 3:Low Drop (bits:011010)
	af32	Assured Forwarding Class 3:Medium Drop (bits:011100)
	af33	Assured Forwarding Class 3:High Drop (bits:011110)
	af41	Assured Forwarding Class 4:Low Drop (bits:100010)
	af42	Assured Forwarding Class 4:Medium Drop (bits:100100)
	af43	Assured Forwarding Class 4:High Drop (bits:100110)
	ef	Expedited Forwarding (bits:101110)

5.14.2 ds list

Description Show Differentiated Service priority list

Syntax ds list

Parameter None

5.14.3 dstip

Description Specify dest IP address of packets to remark vlan priority / Show dest IP address priority list entry / Disable dest IP address priority list entry

Syntax dstip <number> prio <prio ID> {xdsl <port>/<pvc> | gigabit {<port> | la}} ip <ipv4 address> <netmask>

dstip <number> list

dstip <number> disable

Parameter

Name	Description
<number>	Destination IP address priority list number **Valid values**: 1~256 **Default value**: - **Type**: Mandatory
<prio ID>	Priority value **Valid values**: 0~7 **Default value**: - **Type**: Mandatory
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8

	Default value: - **Type**: Mandatory
<ipv4 address>	Destination IP address **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: 0.0.0.0 **Type**: Mandatory
<netmask>	Subnet mask **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: - **Type**: Optional

5.14.4 dstip list

Description Show destination IP address priority list

Syntax dstip list

Parameter None

5.14.5 dstmac

Description Specify dest MAC of packets to remark vlan priority / Show dest MAC priority list entry / Disable dest MAC priority list entry

Syntax dstmac <number> prio <prio ID> {xdsl <port>/<pvc> | gigabit {<port> | la}} mac <mac address>

dstmac <number> list

dstmac <number> disable

Parameter

Name	Description
<number>	Destination MAC priority list number **Valid values**: 1~256 **Default value**: - **Type**: Mandatory
<prio ID>	Priority value **Valid values**: 0~7 **Default value**: - **Type**: Mandatory
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory

<mac address>	MAC address **Valid values**: xx:xx:xx:xx:xx:xx (xx:0~ff) **Default value**: 00:00:00:00:00:00 **Type**: Mandatory

5.14.6 dstmac list

Description Show destination MAC priority list

Syntax dstmac list

Parameter None

5.14.7 ethertype

Description Specify Ether Type of packets to remark vlan priority / Show Ether Type priority list entry / Disable Ether Type priority list entry

Syntax ethertype <number> prio <prio ID> {xdsl <port>/<pvc> | gigabit {<port> | la}} type <ethertype>

ethertype <number> list

ethertype <number> disable

Parameter

Name	Description
<number>	ToS (IP Precedence) priority list number **Valid values**: 1~256 **Default value**: - **Type**: Mandatory
<prio ID>	Priority value **Valid values**: 0~7 **Default value**: - **Type**: Mandatory
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<ethertype>	Ether Type value **Valid values**: 0x0001 ~ 0xffff **Default value**: - **Type**: Mandatory

5.14.8 ethertype list

Description Show Ether Type priority list

Syntax ethertype list

Parameter None

5.14.9 ipprotocol

Description Specify IP protocol of packets to remark vlan priority / Show IP protocol priority list entry / Disable IP protocol priority list entry

Syntax ipprotocol <number> prio <prio ID> {xdsl <port>/<pvc> | gigabit {<port> | la} } protocol <protocol>

ipprotocol <number> list

ipprotocol <number> disable

Parameter

Name	Description
<number>	ToS (IP Precedence) priority list number **Valid values**: 1~256 **Default value**: - **Type**: Mandatory
<prio ID>	Priority value **Valid values**: 0~7 **Default value**: - **Type**: Mandatory
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
protocol	Input protocol name. **Valid values**: icmp (ICMP) Internet Control Message <1> igmp (IGMP) Internet Group Management <2> ipinip IP in IP (encapsulation) <4> tcp (TCP) Transmission Control <6> grp (GRP) Globin Reduction Protocol <7> igp (IGP) Any private interior gateway <9>

	udp (UDP) User Datagram <17> gre (GRE) General Routing Encapsulation <47> eigrp EIGRP <88> ospf OSPF <89> **Default value**: - **Type**: Mandatory

5.14.10 ipprotocol list

Description Show IP protocol priority list

Syntax ipprotocol list

Parameter None

5.14.11 srcip

Description Specify source IP address of packets to remark vlan priority

Syntax srcip <number> prio <prio ID> {xdsl <port>/<pvc> | gigabit {<port> | la}} ip <ipv4 address> <netmask>

srcip <number> list

scrip <number> disable

Parameter

Name	Description
<number>	Source IP address priority list number **Valid values**: 1~256 **Default value**: - **Type**: Mandatory
<prio ID>	Priority value **Valid values**: 0~7 **Default value**: - **Type**: Mandatory
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<ipv4 address>	Destination IP address **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: 0.0.0.0

	Type: Mandatory
<netmask>	Subnet mask **Valid values**: xxx.xxx.xxx.xxx (xxx:0~255) **Default value**: - **Type**: Optional

5.14.12 srcip list

Description Show source IP address priority list

Syntax srcip list

Parameter None

5.14.13 srcmac

Description Specify source MAC of packets to remark vlan priority

Syntax srcmac <number> prio <prio ID> {xdsl <port>/<pvc> | gigabit {<port> | la}} mac <mac address>

srcmac <number> list

srcmac <number> disable

Parameter

Name	Description
<number>	Source mac priority list number **Valid values**: 1~256 **Default value**: - **Type**: Mandatory
<prio ID>	Priority value **Valid values**: 0~7 **Default value**: - **Type**: Mandatory
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<mac address>	MAC address **Valid values**: xx:xx:xx:xx:xx:xx (xx:0~ff) **Default value**: 00:00:00:00:00:00 **Type**: Mandatory

5.14.14 srcmac list

Description Show source MAC priority list

Syntax srcmac list

Parameter None

5.14.15 tos

Description Specify ToS (IP Precedence) of packets to remark vlan priority / Show ToS (IP Precedence) priority list entry / Disable ToS (IP Precedence) priority list entry

Syntax tos <number> prio <prio ID> {xdsl <port>/<pvc> | gigabit {<port> | la}} precedence <tos>

tos <number> list

tos <number> disable

Parameter

Name	Description
<number>	ToS (IP Precedence) priority list number **Valid values**: 1~256 **Default value**: - **Type**: Mandatory
<prio ID>	Priority value **Valid values**: 0~7 **Default value**: - **Type**: Mandatory
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<tos>	Incoming Type of Service. **Valid values**: 0~7 **Default value**: - **Type**: Mandatory

5.14.16 tos list

Description Show ToS (IP Precedence) priority list

Syntax tos list

Parameter None

5.14.17 vlanid

Description Specify VLAN ID of packets to remark VLAN priority / Show VLAN id priority list entry / Disable VLAN id priority list entry

Syntax vlanid <number> prio <prio ID> {xdsl <port>/<pvc> | gigabit {<port> | la}} vlan <VLAN ID>

vlanid <number> list

vlanid <number> disable

Parameter

Name	Description
<number>	Vlan id priority list number **Valid values**: 1~256 **Default value**: - **Type**: Mandatory
<prio ID>	Priority value **Valid values**: 0~7 **Default value**: - **Type**: Mandatory
<port>	Port number. **Valid values**: 1~48 for xDSL, 1~2 for GBE **Default value**: - **Type**: Mandatory
<pvc>	PVC number **Valid values**: 1 ~ 8 **Default value**: - **Type**: Mandatory
<VLAN ID>	VLAN ID number **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory

5.14.18 vlanid list

Description Show VLAN id priority list

Syntax vlanid list

Parameter None

5.15 Alarm Profile Mode Commands

The commands in this section can be executed only in the Alarm Profile execution mode.

5.15.1 alarm mask

Description Mask the alarm

Syntax alarm mask <name>

Parameter

Name	Description
<name>	Name of alarm. **Valid values**: Refer to Appendix B Alarm Table. **Default value**: - **Type**: Mandatory

5.15.2 alarm unmask

Description Unmask the alarm

Syntax alarm unmask <name>

Parameter

Name	Description
<name>	Name of alarm. **Valid values**: Refer to Appendix B Alarm Table. **Default value**: - **Type**: Mandatory

5.15.3 alarm major

Description Set the level of the alarm to Major

Syntax alarm major <name>

Parameter

Name	Description
<name>	Name of alarm. **Valid values**: Refer to Appendix B Alarm Table. **Default value**: - **Type**: Mandatory

5.15.4 alarm minor

Description Set the level of the alarm to Minor

Syntax alarm minor <name>

Parameter

Name	Description
<name>	Name of alarm. **Valid values**: Refer to Appendix B Alarm Table. **Default value**: - **Type**: Mandatory

5.16 IGMP-ACL Profile Mode Commands

The commands in this section can be executed only in the IGMP-ACL Profile execution mode.

5.16.1 igmp-acl

Description IGMP group ACL Setting (IP and VLAN) / Delete channel setting

Syntax igmp-acl <number> {<ipv4 address> vlan <VLAN ID> | delete}

Parameter

Name	Description
<number>	IGMP ACL channel index. **Valid values**: 1 ~ 256 **Default value**: - **Type**: Mandatory
<ipv4 address>	IGMP group address **Valid values**: 224.0.0.0 ~ 239.255.255.255 The range of addresses from 224.0.0.0 to 224.0.0.255 is reserved for the use of routing protocols and other low-level topology discovery or maintenance protocols. **Default value**: 0.0.0.0 **Type**: Mandatory
<VLAN ID>	VLAN ID. **Valid values**: 1 ~ 4094 **Default value**: - **Type**: Mandatory

5.16.2 igmp-acl rebind

Description IGMP ACL Profile rebind

Syntax igmp-acl rebind

Parameter None

5.17 Rate Limit Profile Mode Commands

The commands in this section can be executed only in the Rate Limit Profile execution mode.

5.17.1 share-slb

Description Set share SLB (Single Leaky Bucket) / Delete the share SLB profile

Syntax share-slb <number> {cir <cir> lbs <lbs> | disable}

Parameter

Name	Description
number	Share SLB profile index **Valid values**: 1 ~ 48 **Default value**: - **Type**: Mandatory
<cir>	Committed Information Rate (bps) **Valid values**: 1536 ~ 1000000000 **Default value**: - **Type**: Mandatory
<lbs>	Leakage Bucket Size (bits) **Valid values**: 1 ~ 1024 **Default value**: - **Type**: Mandatory

5.17.2 share-dlb

Description Set share DLB (Dual Leaky Bucket) / Delete the share DLB profile

Syntax share-dlb <number> {cir <cir> lbs <lbs> eir <eir> lbs <lbs> | disable}

Parameter

Name	Description
number	Share DLB profile index **Valid values**: 1 ~ 48 **Default value**: - **Type**: Mandatory
<cir>	Committed Information Rate (bps) **Valid values**: 1536 ~ 1000000000 **Default value**: - **Type**: Mandatory
<lbs>	First Leakage Bucket Size (bits) **Valid values**: 1 ~ 1024 **Default value**: - **Type**: Mandatory
<eir>	Excess Info Rate (bps) **Valid values**: 1536 ~ 1000000000

	Default value: - **Type**: Mandatory
<lbs>	Second Leakage Bucket Size (bits) **Valid values**: 1 ~ 1024 **Default value**: - **Type**: Mandatory

5.17.3 non-share-slb

Description Set non-share SLB (Single Leaky Bucket) / Delete the non-share SLB profile

Syntax non-share-slb <number> {cir <cir> lbs <lbs> | disable}

Parameter

Name	Description
number	Share SLB profile index **Valid values**: 1 ~ 48 **Default value**: - **Type**: Mandatory
<cir>	Committed Information Rate (bps) **Valid values**: 1536 ~ 1000000000 **Default value**: - **Type**: Mandatory
<lbs>	Leakage Bucket Size (bits) **Valid values**: 1 ~ 1024 **Default value**: - **Type**: Mandatory

5.17.4 non-share-dlb

Description Set non-share DLB (Dual Leaky Bucket) / Delete the non-share DLB profile

Syntax non-share-dlb <number> {cir <cir> lbs <lbs> eir <eir> lbs <lbs> | disable}

Parameter

Name	Description
number	Share DLB profile index **Valid values**: 1 ~ 48 **Default value**: - **Type**: Mandatory
<cir>	Committed Information Rate (bps) **Valid values**: 1536 ~ 1000000000 **Default value**: - **Type**: Mandatory
<lbs>	First Leakage Bucket Size (bits) **Valid values**: 1 ~ 1024 **Default value**: -

	Type: Mandatory
<eir>	Excess Info Rate (bps) **Valid values**: 1536 ~ 1000000000 **Default value**: - **Type**: Mandatory
<lbs>	Second Leakage Bucket Size (bits) **Valid values**: 1 ~ 1024 **Default value**: - **Type**: Mandatory

5.18 Service Profile Configure Mode Commands

The commands in this section can be executed only in the Service Profile execution mode.

5.18.1 bitrate

Description Set downstream/upstream Minimum/Maximum/Planned/L2 minimum bit rate

Syntax bitrate {ds | us} {min | max | planned | l2} <number>

Parameter

Name	Description
number	Bit rate (kb/s). **Valid values**: 0-65535 **Default value**: - **Type**: Mandatory

5.18.2 delay

Description Set downstream/upstream delay introduced by the interleaving

Syntax delay {ds | us} <number>

Parameter

Name	Description
number	Delay time (ms). **Valid values**: 1-63 **Default value**: - **Type**: Mandatory

5.18.3 l2-packet

Description Set L2 Packet cell

Syntax l2-packet <number>

Parameter

Name	Description
number	Set L2 Packet cell. **Valid values**: 0 ~ 28 **Default value**: - **Type**: Mandatory

5.18.4 mode

Description Set downstream/upstream rate adaptive mode to **init** (rate automatically selected at start up only and does not change after that), **dynamic** (rate automatically selected at initialization and is continuously adapted during show time), or **manual** (rate changed manually)

Syntax mode {ds | us} {init | dynamic | manual}

Parameter None

5.18.5 noise

Description Set downstream/upstream minimum impulse noise protection.

Syntax noise {ds | us} <number>

Parameter

Name	Description
number	Noise (tenth symbols). **Valid values**: 0~8 step 0.1 **Default value**: - **Type**: Mandatory

5.18.6 noisemargin

Description Set Downshift/Upshift Noise Margin in downstream/upstream direction

Syntax noisemargin {ds | us} {downshift | upshift} <number>

Parameter

Name	Description
number	Downshift/Upshift Noise Margin (tenth symbols). **Valid values**: 0~31 step 0.1 **Default value**: - **Type**: Mandatory

5.18.7 ra-interval

Description Set Downshift/Upshift Interval in downstream/upstream direction

Syntax ra-interval {ds | us} {downshift | upshift} <number>

Parameter

Name	Description
number	Downshift/Upshift interval (seconds). **Valid values**: 0 ~ 16383 **Default value**: 10 **Type**: Mandatory

5.18.8 service name

Description Set service profile name

Syntax service name <string>

Parameter

Name	Description
<string>	Profile name. (max 31 characters) **Default value**: - **Type**: Mandatory

5.19 Spectrum Profile Configure Mode Commands

The commands in this section can be executed only in the Spectrum Profile execution mode.

5.19.1 aggregate

Description Set downstream/upstream aggregate power level

Syntax aggregate {ds | us} max powerlevel <number>

Parameter

Name	Description
<number>	Power level (tenth dBm). **Valid values**: 0~25.5 step 0.1 **Default value**: - **Type**: Mandatory

5.19.2 bands <index> {start | stop}

Description Set RF bands

Syntax bands <index> {start | stop} <value>

Parameter

Name	Description
index	Bands array index. **Valid values**: 0-7 **Default value**: - **Type**: Mandatory
value	Set start / stop frequency (kHz). **Valid values**: 0-12000 **Default value**: - **Type**: Mandatory

5.19.3 bands <index> mask

Description Set bands mask

Syntax bands <index> mask <value>

Parameter

Name	Description
index	Bands array index. **Valid values**: 0-7 **Default value**: - **Type**: Mandatory
value	**Valid values**: see the following: egress_no_control egress no control egress_notched egress notched ingress_low ingress low

	ingress_weak ingress weak ingress_strong ingress strong rf_signal_am RF Signal AM Type rf_signal_hamband RF Signal HAMBAND Type **Default value**: egress_no_control **Type**: Mandatory

5.19.4 carriermask

Description Set carrier mask

Syntax carriermask {ds | us} <index> <value>

Parameter

Name	Description
index	Carrier mask array index. **Valid values**: 0-63 **Default value**: - **Type**: Mandatory
<value>	Carrier mask array value. **Valid values**: 0x00~0xff (Hex) **Default value**: - **Type**: Mandatory

5.19.5 message-based

Description Set minimum DS/US message-based data rate that is needed by ATU

Syntax message-based {ds | us} min <number>

Parameter

Name	Description
<number>	Min downstream/upstream message-based data rate. **Valid values**: 4 ~ 28 kbps **Default value**: - **Type**: Mandatory

5.19.6 modem features

Description Set modem features enable/disable

Syntax modem features {enable | disable}

Parameter None

5.19.7 noisemargin

Description Set downstream/upstream maximum / minimum / target noise margin

Syntax noisemargin {ds | us} {max | min | target} <number>

Parameter

Name	Description
<number>	Noise margin value. **Valid values**: 0~31 (or 51.1 means no max noise margin is used) step 0.1. **Default value**: - **Type**: Mandatory

5.19.8 opmode

Description Set Operational mode

Syntax opmode {set | clear} <opmode id>

Parameter

Name	Description
opmode id	The ID of allowed ADSL modes of operation. **Valid values**: Use 'list opmode' command to see all the operation modes. **Default value**: - **Type**: Mandatory

5.19.9 pbomode

Description Set power backoff operation mode ON/OFF

Syntax pbomode us {on | off}

Parameter None

5.19.10 power-mgt disable

Description Disable power management function for ADSL

Syntax power-mgt disable

Parameter None

5.19.11 power-mgt l2 enable

Description Allow autonomous L2 state entry/exit

Syntax power-mgt l2 enable

Parameter None

5.19.12 power-mgt l2_l3 enable

Description Allow autonomous L2 and L3 state entry/exit

Syntax power-mgt l2_l3 enable

Parameter None

5.19.13 power-mgt l0-time

Description Set the minimum time (in seconds) between Exit from L2 low power state and the next Entry into the L2 low power state

Syntax power-mgt l0-time <number>

Parameter

Name	Description
<number>	L0 Time value. **Valid values**: 0 ~ 255 (sec) **Default value**: - **Type**: Mandatory

5.19.14 power-mgt l2-time

Description Set minimum time (in seconds) between an Entry into L2 low power state and the first L2 low power trim request, and between two consecutive L2 power trim requests

Syntax power-mgt l2-time <number>

Parameter

Name	Description
<number>	L2 Time value. **Valid values**: 0 ~ 255 (sec) **Default value**: - **Type**: Mandatory

5.19.15 power-mgt l2-atpr

Description Set maximum aggregate transmit power reduction (in dB) that is allowed at transition of L0 to L2 state or an L2 low power trim request

Syntax power-mgt l2-atpr <number>

Parameter

Name	Description
<number>	L2 power reduction range value. **Valid values**: 0 ~ 31 (dB) **Default value**: - **Type**: Mandatory

5.19.16 power-mgt l2-atprt

Description Set total maximum aggregate transmit power reduction (in dB) that is allowed in the L2 state; the total reduction is the sum of all reductions of L2 Request (i.e., at transition of L0 to L2 state) and L2 power trims

Syntax power-mgt l2-atprt <number>

Parameter

Name	Description
<number>	L2 total power reduction value. **Valid values**: 0 ~ 31 (dB) **Default value**: - **Type**: Mandatory

5.19.17 psdlevel

Description Set PSD level

Syntax psdlevel {ds | us} max <number>

Parameter

Name	Description
<number>	Maximum PSD level (tenth dBm/Hz). **Valid values**: -60 ~ -40 downstream step 0.1 -60 ~ -38 upstream. step 0.1 **Default value**: - **Type**: Mandatory

5.19.18 psdshape

Description Set PSD shape

Syntax psdshape ds {cut-off <number> | standard}

Parameter

Name	Description
number	Cut-off frequencies at carrier. **Valid values**: 100-280 step 10 **Default value**: - **Type**: Mandatory

5.19.19 rxaggregate us max powerlevel

Description Set maximum aggregate receive power level

Syntax rxaggregate us max powerlevel <number>

Parameter

Name	Description
<number>	Maximum aggregate receive power level (-255~255 tenth dBm). **Valid values**: -25.5~25.5 step 0.1 **Default value**: - **Type**: Mandatory

5.19.20 spectrum name

Description Set spectrum profile name

Syntax spectrum name <string>

Parameter

Name	Description
<string>	Name of the spectrum profile. (max 31 characters) **Default value**: - **Type**: Mandatory

5.19.21 status modify complete

Description Set the status of modification

Syntax status modify complete

Parameter None

5.20 TCA Profile Mode Commands

The commands in this section can be executed only in the TCA Profile execution mode.

5.20.1 adsl-tca day

Description Set threshold value for near-end/far-end day PM

Syntax adsl-tca day {ne | fe} {es | ses | uas} <number>

Parameter

Name	Description
number	Threshold value. **Valid values**: 0-86400 **Default value**: - **Type**: Mandatory

5.20.2 adsl-tca disable

Description Disable TCA

Syntax adsl-tca disable

Parameter None

5.20.3 adsl-tca enable

Description Enable TCA

Syntax adsl-tca enable

Parameter None

5.20.4 adsl-tca interval

Description Set threshold value for near-end/far-end interval PM

Syntax adsl-tca interval {ne | fe} {es | ses | uas | lof | lol | los | errframe} <number>

Parameter

Name	Description
number	Threshold value. **Valid values**: 0-900 **Default value**: - **Type**: Mandatory

Appendix A ADSL Operational Mask Table

Table A-1 ADSL Operational Mask

Bit	Description	Bit	Description
0	ANSI_T1.413	**32**	992_4_I_AllDigital_NonOverlapped
1	ETSI_DTS_TM06006	**33**	992_4_I_AllDigital_Overlapped
2	992_1_A_Pots_NonOverlapped	**34**	992_3_L_Pots_NonOverlapped_Mode1
3	992_1_A_Pots_Overlapped	**35**	992_3_L_Pots_NonOverlapped_Mode2
4	992_1_B_Isdn_NonOverlapped	**36**	992_3_L_Pots_Overlapped_Mode3
5	992_1_B_Isdn_Overlapped	**37**	992_3_L_Pots_Overlapped_Mode4
6	992_1_C_TcmIsdn_NonOverlapped	**38**	992_3_M_Pots_Extend_US_Overlapped
7	992_1_C_TcmIsdn_Overlapped	**39**	992_3_M_Pots_Extend_US_NonOverlapped
8	992_2_A_Pots_NonOverlapped	**40**	992_5_A_Pots_NonOverlapped
9	992_2_B_Pots_Overlapped	**41**	992_5_A_Pots_Overlapped
10	992_2_C_TcmIsdn_NonOverlapped	**42**	992_5_B_Isdn_NonOverlapped
11	992_2_C_TcmIsdn_Overlapped	**43**	992_5_B_Isdn_Overlapped
18	992_3_A_Pots_NonOverlapped	**46**	992_5_I_AllDigital_NonOverlapped
19	992_3_A_Pots_Overlapped	**47**	992_5_I_AllDigital_Overlapped
20	992_3_B_Isdn_NonOverlapped	**48**	ANSI_T1.424
21	992_3_B_Isdn_Overlapped	**49**	ETSI_TS_101_270
24	992_4_A_Pots_NonOverlapped	**50**	993_1
25	992_4_A_Pots_Overlapped	**51**	IEEE_8023ah
28	992_3_I_AllDigital_NonOverlapped	**56**	992_5_J_AllDigital_NonOverlapped
29	992_3_I_AllDigital_Overlapped	**57**	992_5_J_AllDigital_Overlapped
30	992_3_J_AllDigital_NonOverlapped	**58**	992_5_M_Pots_Extend_US_NonOverlapped
31	992_3_J_AllDigital_Overlapped	**59**	992_5_M_Pots_Extend_US_Overlapped

Appendix B Alarm Table

Table B-1 Alarm Table

Alarm ID	Name	Description
104	alm_fan_fail	System Fan Fail
105	alm_self_test_fail	System Self Test Fail
106	alm_above_temper	System Above Temperature
107	alm_below_temper	System Below Temperature
118	alm_dsl_dsp	System DSP Fail
601	alm_adsl_los	Near-end Loss of Signal
602	alm_adsl_lof	Near-end Loss of Frame
603	alm_adsl_lom	Near-end Loss of Margin
610	alm_adsl_lcd	Near-end Loss Cell Delineation
612	alm_adsl_ncd	Near-end No Cell Delineation
613	alm_adsl_los_fe	Far-end Loss of Signal
614	alm_adsl_lof_fe	Far-end Loss of Frame
615	alm_adsl_lom_fe	Far-end Loss of Margin
616	alm_adsl_lopwr_fe	Far-end Loss of Power
619	alm_adsl_commf_fe	Far-end Communication Failure
620	alm_adsl_nopeer_fe	Far-end No Peer Present
622	alm_adsl_lcd_fe	Far-end Loss Cell Delineation
624	alm_adsl_ncd_fe	Far-end No Cell Delineation

Appendix C Maintenance Requirement

Tools and Equipment Requirements

Below tablelists required tools and test equipment for the VX-1000HDX/MDX system maintenance.

Required Installation Tools and Materials

Item Required	Purpose
Anti-static wrist strap	Protect the system from electrostatic discharge damage
Hand tool	Screwdrivers for equipment removal and replacement
Wire cutter/stripper	Prepare wires for electrical connections
Wire-wrap gun and bit	Removing and replacing the system interconnection wires
Wires	System interconnections to external facilities
VF transmission and signaling test sets	Testing faulty POTS
Fuse and alarm panel	For protection and simplifying troubleshooting

System Spares

Always keep spares for the DSLAM at each central office for replacement purposes. During the system trouble-shooting procedures, certain cards at the central office and/or remote site will be required to be replaced.

Dispatching Maintenance Persionnel

Some procedures in this manual involve end-to-end system testing, for which technicians are needed at each remote site. The remote VX-1000HDX/MDX system sites are normally unattended, however, technicians should be dispatched when needed. The VX-1000HDX/MDX system maintenance efforts and monitor the system for alarms during those on-site operations.

Electrostatic Discharge Protection
The VX-1000HDX/MDX system contains static-sensitive components. Be sure to wear a properly grounded antistatic wrist strap when handling them. Also, when removing and replacing a card, hold it either by its front ejector handle or by its edges.
Do not touch its rear connector contacts, which must remain free of contaminants.

Routine Maintenance
Always monitor the VX-1000HDX/MDX system performance at central office/ remote sites using the snmp. It allows user to view the current system status, alarm information and to take the necessary corrective action if a problem is reported.

Also keep each DSLAM system site free of dust and other pollutant that could affect system performance. In addition, be sure to maintain the environment conditions at the central office and at each remote system site. The ideal operating temperature is about 20°c. The following is the acceptable operating condition range:

- -10°C to 65°C and 0% to 95% humidity at 35°C

Powering the VX-1000HDX/MDX Up or Down
This section describes how to power up the DSLAM and how to power down the DSLAM.

Procedures of Powering Up the DSLAM

Step	Action
1	Put on the antistatic wrist strap and connect it to a grounding point.
2	Ensure that the DSLAM is securely installed.
3	Ensure that the DSLAM ground strap is connected to a suitable ground point.
4	Ensure that –48 Vdc power is being supplied to the DSLAM.
5	Ensure that the fan card is installed.
6	Ensure that the POTS lines, subscriber lines, and alarm equipment are connected.
7	Slide the power switch on the faceplate to ON.
8	Wait for a minute, and then check the LEDs on the DSLAM. If the LEDs show some problem, refer to section 0 for information on how to resolve problems indicated through LEDs.

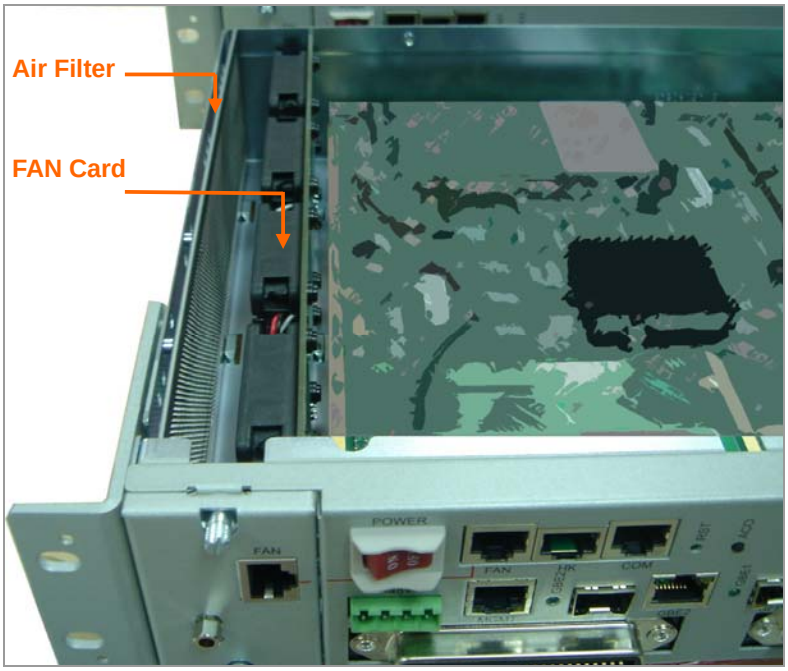
Procedures of Powering Down the DSLAM

Step	Action
	Caution: *Powering down the DSLAM stops DSL service to subscribers. POTS service is not affected.*
1	Put on the antistatic wrist strap and connect it to a grounding point.
2	Slide the power switch on the faceplate to Off.

Replacing Units

This section provides procedures on how to:

- replace the fan card (replace as required)
- replace the air filter (replace every three months)



Procedure 1 Replace the Fan Card

Danger — When removing the fan card, wait for a moment for the fan blades to come to a complete stop before fully extracting the fan card.

1. Put on the antistatic wrist strap and connect it to a grounding point.
2. Slide the power switch of the DSLAM to the OFF position.
3. Remove the fan card to be replaced by doing the following steps:
   - **a** Turn the two screws on the faceplate of the fan card counterclockwise until they loosen the connection of the fan card to the DSLAM.
   - **b** Pull the fan card out about 2 inches and wait for a moment for the fan blades to stop completely.
   - **c** Pull the fan card completely out of the DSLAM, and set it aside.
4. Install the replacement fan card into the DSLAM by doing he following steps:
   - **a** Slide the replacement fan card into the fan card slot of the DSLAM.
   - **b** Turn the two screws on the faceplate of the fan card clockwise until they secure the fan card in place.

Procedure 2 Replace the Air Filter

Note — You must loosen the connection of the fan card to the DSLAM and pull out the FAN card (refer to Procedure 1) before replacing the air filter. While you want to install the replacement filter, remember that you have to insert the air filter into the chassis slot before inserting the FAN card. Because you will not be able to insert the air filter after the FAN card is secured in place.

1. Put on the antistatic wrist strap and connect it to a grounding point.
2. Slide the power switch of the DSLAM to the OFF position.
3. Remove the fan card (refer to Procedure 1).
4. Pull the air filter out of the DSLAM.
5. Slide the replacement air filter into the air filter slot of the DSLAM.
6. Install the FAN card back in the chassis.

Appendix D Introduction for Troubleshooting

This chapter describes instructions for the DSLAM system problems. These procedures may require the presence of technicians at remote system sites and plus an operator at PC to monitor system alarms by console or EMS during maintenance.

Resolving Problems Indicated Through LEDs

This section describes what to do to solve problems indicated by LEDs on the system front panel.

Problems Indicated by LEDs

LED	Activity	Problem	Action
SYS	Not lit even though DSLAM is powered up	There is a power up problem with the system.	Troubleshoot the DSLAM for power up problems; see section 0.
	Red	Self-test failed. There is a functional problem with the system.	Replace the VX-1000HDX.
ALM	Red	Major alarm set	See next section.
	Red-Flash	Major and Minor alarm set	See next section.
	Yellow	Minor alarm set	See next section.
GBE1/GBE2 (If SFP interface is activated)	Not lit even though DSLAM is powered up	No link	Troubleshoot the DSLAM for fiber optics problems.

Resolving Problems Indicated Through Alarms

Alarms of the system are viewed through CLI, Web GUI.
If an alarm indicates a problem, refer to section troubleshooting procedures.

Troubleshooting Procedures for the VX-1000HDX/MDX

When you follow a troubleshooting procedure, start from the first step of the procedure. If the first step does not solve the problem, proceed to the next step; keep going through the steps until the problem is solved. Use the following table to find out the appropriate procedure for troubleshooting the listed problems.

List of Troubleshooting Procedures

Type of problem	Procedure Number
VX-1000HDX power up problems	1
Fan card power up problems	2
Fiber optics problems	3
ADSLx service problems (POTS service is ok)	4
POTS service problems (ADSLx service is ok)	5
Subscriber service problems (no POTS and ADSLx service)	6

Procedure 1 Troubleshoot VX-1000HDX/MDX Power Up Problems

Problem indication:

- the SYS LED on the front panel is not lit even though the DSLAM is powered up
- alarm that indicates a system power up problem
- subscribers connected to the DSLAM do not have DSL service; POTS service is ok

1 Check that the power switch on the front panel is set to the ON position.

2 Check that the power feeds are connected to the DSLAM, and that power is present on the two power feeds with correct polarity.

3 Replace the VX-1000HDX/MDX.

4 Contact your provider.

Procedure 2 Troubleshoot Fan Card Power Up Problems

Problem indication:

- alarm that indicates a fan problem

1 Check that the fan card is completely inserted in its slot.

2 Replace the fan card.

3 Contact your provider.

Procedure 3 Troubleshoot Fiber Optics Problems

Problem indication:

- the GBE1/GBE2 LED on the system front panel is not lit (maybe the signal power detected by the fiber optical receiver being below the minimum power threshold) butthe SFP interface has been activated
- alarm that indicates loss of signal
- subscribers connected to the DSLAM do not have DSL service; POTS service is ok

1 Check the connection of the fiber optics link. Check that the connections are secure and that the transmit and receive connections are not reversed.

2 Disconnect the fiber optics link from the dual fiber optics connector and do a physical loopback at the VX-1000HDX/MDX.

a If the GBE1/GBE2 LED turns green, the problem is with the fiber optics link.

b If the GBE1/GBE2 LED does not turn green, the problem is with the DSLAM. Follow **Procedure 1** to troubleshoot the DSLAM.

3 If the problem is with the fiber optics cabling, clean or replace as appropriate.

4 Contact your provider.

Procedure 4 Troubleshoot ADSLx Service Problems

Problem indication: No ADSLx service to the affected subscribers (POTS service is ok).

1 If all subscribers connected to the DSLAM are affected, and the SYS LED on the front panel is not lit, check the power switch on the front panel:
- if the power switch is set to the OFF position, power up the DSLAM by sliding the power switch to the ON position
- if the power switch is set to the ON position, follow **Procedure 1** to troubleshoot the DSLAM for power up problem

2 If all subscribers are affected, check the SYS LED on the front panel; if it is red, replace the DSLAM.

3 Check the GBE1/GBE2 LED (if SFP interface is activated); if it is not lit, follow **Procedure 3** to troubleshoot the DSLAM for fiber optics problems.

4 If only some subscribers are affected, identify the ports that have problems. Check that the subscribers are connected to the line interfaces properly.

5 Contact your provider.

Procedure 5 Troubleshoot POTS Service Problems

Problem indication: No POTS service to the affected subscribers (ADSLx service is ok).

1 Check the connection of the POTS lines at the POTS connector for the DSLAM.

2 Use a bridging connector to couple the POTS and subscriber lines. If this solves the problem, replace the DSLAM.

3 Check the condition of the POTS lines and connectors.

Procedure 6 Subscriber Service Problems

Problem indication: No POTS and ADSLx service to the affected subscribers.

1 Check the connection of the subscriber lines and POTS lines at the subscriber line connector for DSLAM for subscribers that do not have POTS and ADSLx service.
If this step results in POTS service to the affected subscribers but there is still no ADSLx service to them, follow **Procedure 4** to troubleshoot ADSLx service problems.
If this step results in ADSL service to the affected subscribers but there is still no POTS service to them, follow **Procedure 5** to troubleshoot POTS service problems.

2 Use a bridging connector to couple the POTS and subscriber lines. If this results in POTS service to the affected subscribers, contact your provider.

3 Check the condition of the subscriber lines and connectors.